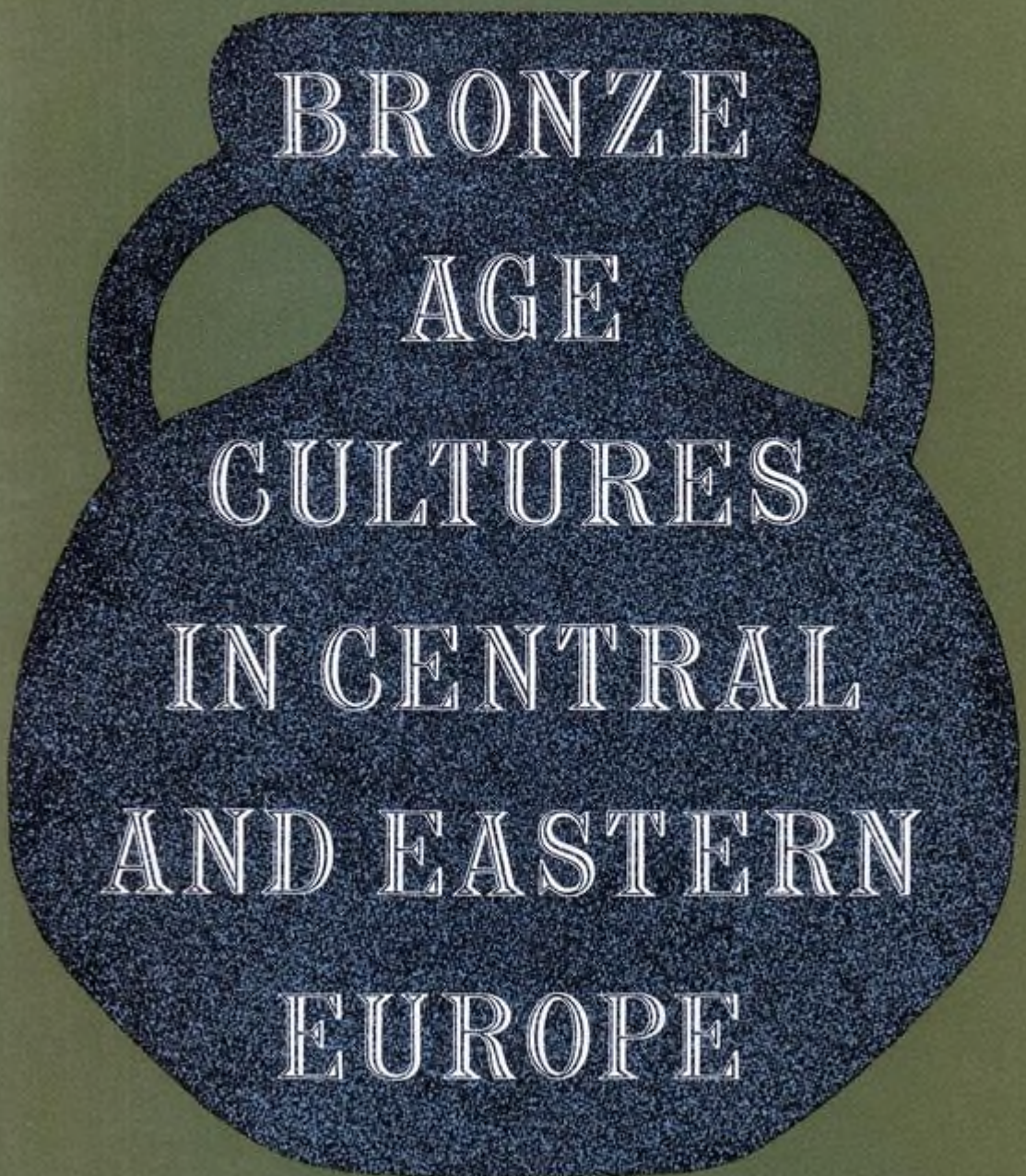
Marija Gimbutas



BRONZE AGE CULTURES IN CENTRAL AND EASTERN EUROPE

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BY

MARIJA GIMBUTAS

1965

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FOREWORD

This volume should not be considered Part II of the author's *Prehistory of Eastern Europe* (1956). Since it was central Europe that played the formative role on the continent during the Bronze Age, the present monograph takes on a wider scope and is independent of the former book.

This monograph is meant for the student of European archaeology, not for the lay reader. This year is not yet the date for a fluently readable book on the Bronze Age of Europe to appear. We are in the period of a "gold rush" of discovery. The spontaneity of research and the increasing accumulation of archaeological material exists without being evaluated, analysis and synthesis always being behind the pace of excavation. My task, therefore, was to summarize and evaluate the first hand sources of about fifteen countries. I believed that drawing together as much information as possible in order to make the complicated cultural history of the second millennium B.C. more understandable, could not be postponed.

Unfortunately, the book must appear before the new dating techniques, particularly the Carbon 14 method, could become of wider use in central and eastern Europe, and before the results of the analyses of metal objects have been published. I release this work without the feeling that it is as I wished it to be, but in writing this sort of monograph I hoped to help the younger members of the family of archaeologists by making the heretofore unknown sources accessible and summarized in a familiar language, as well as bringing forward new facts, concepts, hypotheses, classifications, and labels.

ACKNOWLEDGMENTS

During the years of preparation of this volume many institutions and individual scholars have offered their assistance and co-operation for which I wish to express my profound gratitude.

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Through correspondence, by personal meetings with numerous colleagues, and during my study tours through the archaeological museums of central, eastern, and northern Europe and to the new excavations, I obtained invaluable information and illustrations. With deep appreciation I wish to mention here a long list of scholars and their institutions (alphabetically by countries) who have generously helped in building this book.

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Cambridge, Massachusetts Marija Gimbutas

June, 1963

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PLATES

ABBREVIATIONS OF SERIAL PUBLICATIONS AND INSTITUTIONS

ACTES de la ... Session, Congrès International des Sciences Préhistoriques et Protohistoriques.
AfA - Archiv für Anthropologie, Braunschweig
AJA - American Journal of Archaeology
Altpreussen - Altpreussen, Vierteljahresschrift, Königsberg i Pr.
Altschlesien - Altschlesien, Mitteilungen des schlesischen Altertumvereins, Breslau (Wrocław)
AN - Akademija Nauk SSSR
ANUA - Akademija Nauk Ukrainskoj SSR
Arkh. Pam. USSR - Arkheologichni pam'jatki URSR (Archaeological finds of the Ukrainian SSR), Akademija Nauk Ukrainskoj RSR, Kiev
Arkheologicheskij Sbornik – Arkheologicheskij Sbornik. Trudy Gosudarstvennogo Istoricheskogo Muzeja, Moscow
Arkheologija - Arkheologija, Akademija Nauk URSR, Institut Arkheolohiji, Kiev
BMFEA - Bulletin of the Museum of Far Eastern Antiquities, Stockholm
BSA - The annual of the British School at Athens, London
Dolgozatok - Dolgozatok a M. kir. Ferencz József tudományegyetem archaeologiai intézeteböl, Szeged
ESA - Eurasia Septentrionalis Antiqua. Zeitschrift für Erforschung der osteuropäischen und nordasiatischen Archäologie und Ethnographie, Helsinki
Fontes Praehistorici - Fontes Praehistorici. Annales Musei Archaeologici Posnaniensis, Muzeum Archeologiczne, Poznań
FUF - Finnisch-Ugrische Forschungen, Zeitschrift für finnisch-ugrische Sprach- und Volkskunde, Helsinki
GAIMK - Gosudarstvennaja Akademija Istorii Material'noj Kul'tury (The State Academy for the History of Material Culture)
Germania - Germania. Römisch-germanische Kommission, Frankfurt a/Main
GIM - Gosudarstvennyj Istoricheskij Muzej
IAK - Izvestija Arkheologicheskoj Komissii, Moscow, 1901-1918
IIMK - Institut Istorii Material'noj Kul'tury, Moscow-Leningrad
JMV - Jahresschrift für Mitteldeutsche Vorgeschichte, Halle/Saale
JST - Jahresschrift für die Vorgeschichte der sächsisch-thüringischen Länder, Halle/Saale
KSIA - Kratkie Soobshchenija Instituta Arkheologii. Akademija Nauk Ukrainskoj SSR, Kiev
KSIE - Kratkie Soobshchenija Instituta Etnografii, Akademija Nauk SSSR, Moscow
KSIIMK - Kratkie soobshchenija o dokladakh i polevykh issledovanijakh Instituta Istorii Material'noj Kul'tury, Akademija Nauk SSSR, Moscow
MAGW - Mitteilungen der Anthropologischen Gesellschaft in Wien
MAK - Materialy po Arkheologii Kavkaza, Moscow, 1888-1916
Man - Man. A monthly record of anthropological science, The Royal Anthropological Institute, London
Mannus Z. - Mannus, Zeitschrift für Vorgeschichte, Würzburg
MAR - Materialy po Arkheologii Rossii, S. Petersburg, 1888-1918
Medd. - Meddelanden från Lunds Universitets Historiska Museum

MIA - Materialy i Issledovanija po Arkheologii SSSR, Akademija Nauk SSSR, IIMK
OAK - Otchet Arkheologicheskoj Komisii
PIDO - Problemy istorii doklassovogo obschchestva, Moscow
PPS - Proceedings of the Prehistoric Society, London
RANIION - Rosijskaja Assotsjatsija Nauchno-Issledovatel'skikh Institutov Obshchestvennykh Nauk. Institut Arkheologii i Iskustvoznanija. Trudy Otdelenija Arkheologii, Moscow
RAO - Russkoe Arkheologicheskoe Obshchestvo, Moscow
Reallexicon - Reallexicon der Vorgeschichte. Edited by M. Ebert, Berlin 1924-1932.
SA - Sovetskaja Arkheologija, Akademija Nauk SSSR, Moscow-Leningrad
SAN Gruz. SSR - Soobshchenija Akademii Nauk Gruzinskoj SSR
Sb. Prussia - Sitzungsberichte der Altertumsgesellschaft Prussia, Königsberg i Pr.
SCIV - Studii si Cercetări de Istoria Veche, Rumanian Academy of Sciences
SE - Sovetskaja Ėtnografija, Akademija Nauk SSSR, Moscow-Leningrad
SMYA - Suomen Muinaismuistoyhdistyksen Aikakauskirja. Finska Fornminnesföreningens Tidskrift. Zeitschrift für finnische Altertumskunde, Helsinki
Sprawozdania PAU - Sprawozdania Państwowej Akademii Umiejętności, Kraków
Sprawozdania PMA - Sprawozdania Państwowego Muzeum Archeologicznego, Warsaw
Trudy AS - Trudy I-XV Vserossijskikh arkheologicheskikh s'ezdov
Trudy GIM (TGIM) - Trudy Gosudarstvennogo Istoricheskogo Muzeja, Moscow
UZKabNII - Uchenye Zapiski Kabardinskogo Nauchnogo Istoricheskogo Instituta, Nal'chik
VDI - Vestnik Drevnej Istorii
WMBH - Wissenschaftliche Mitteilungen aus Bosnien und Herzegowina, Sarajevo.
WPZ - Wiener Prähistorische Zeitschrift, Vienna
ZfE - Zeitschrift für Ethnologie, Berlin
ZUOLE - Zapiski Uralskogo obshchestva ljubitelej estestvoznanija

TRANSLITERATION

OF RUSSIAN LETTERS

а — a	е — e	к — k	п — p	ф — f	щ — shch
б — b	ж — zh	л — l	р — r	х — kh	ъ — ”
в — v	з — z	м — m	с — s	ц — ts	ы — y
г — g	и — i	н — n	т — t	ч — ch	ь — ’
д — d	й — j	о — o	у — u	ш — sh	э — ė
					ю — ju
					я — ja

OF UKRAINIAN LETTERS

а — a	є — je	й — j	п — p	х — kh	я — ja
б — b	ж — zh	к — k	р — r	ц — ts	ь — ’
в — v	з — z	л — l	с — s	ч — ch	’ — ”
г — h	и — y	м — m	т — t	ш — sh	
д — d	і — i	н — n	у — u	щ — shch	
е — e	ї — ji	о — o	ф — f	ю — ju	

Note: The larger cities and more popular names used in geographic atlases or other written English ources are left in the traditional form of spelling.

INTRODUCTION

The materials for this monograph have been accumulating for over a century. Thousands of Bronze Age cemeteries, habitation sites, hoards, and isolated finds have been excavated. The earliest discoveries in central Europe were sporadic and accidental and occurred many centuries before the science of archaeology was born. For example, one of the first records of Late Bronze Age pots appeared five hundred years ago, although the excavator little realized what he had found. Jan Długosz (1415-1480), in his *Historia Polonica*, mentioned that:

...in Poland miraculous things are happening. For instance, in the village of Nochów near Szrem (district of Poznań) and in the village of Kozielsk near Łękno pots of various shapes and sizes are growing by themselves without any human help.
... They are soft while in the earth, resting in their "birthpits", but after they are excavated, they harden in the wind and sun and become strong... And it is particularly amazing to me that their innate reproduction seems never to decrease although the earth is not open... (Długosz, *Opera Omnia*, 1873, vol. X, p. 57).

Today we know that these pots belonged to the Lusatian Urnfield people, and even now "their innate reproduction" has not decreased. After these discoveries, 400 years went by before scientific excavations were begun. In only the last few decades of the nineteenth century, Early Bronze Age Únětician royal graves in Saxony and the Únětice cemetery itself in Bohemia were uncovered; the stratified "tell" sites at Tószeg on the Tisza River in Hungary and at Pecica on the Mureș River in western Rumania, the Faskau cemetery in the central Caucasus, and the Turbino cemetery on the upper Kama River west of the middle Urals were excavated, and fascinating collections of isolated bronze artifacts and bronze hoards from Hungary, Czechoslovakia, and Germany were described and published. At the turn of the twentieth century, the Timber-grave culture in south Russia was discovered and in the Baltic area, and southern Scandinavia when a series of huge barrows was revealed. In 1912 and 1914 came the discoveries of the Borodino royal hoard in Bessarabia and the Sejma cemetery in northern central Russia.

Although important finds have accumulated throughout the past hundred years, the most vital information has been supplied by the recent large-scale excavations; even 15 years ago it would not have been possible to speak of a number of cultural groups and chronological phases. What was known before World War II is only a fragment of what is known today.

To date there have been no syntheses of Bronze Age cultures in central and eastern Europe, nor any fixed and indisputable chronological classifications. The vast amount of uncorrelated material available means that this monograph must deal with many details, with descriptions of particular finds and sites, and with typological and commercial relations between cultures, in addition to defining general cultural developments and separate cultural groups. In the first place, a framework must be constructed which includes every find, grave, hoard, or habitation site, many of which have been wrongly dated: hence the first part of the book is entirely devoted to questions of chronology, obviously an essential step in the reconstructing of cultural entities in their proper sequence. The book, then, has two divisions: one

horizontal, the other vertical - the similar fragments must be placed together in the same box before the boxes can be arranged in the most meaningful relationship.

Again, the bulk of the text is a natural response to the necessity of covering all the presently large, and always increasing, body of information on the Bronze Age cultures in Europe. My task will be fulfilled if this skeleton framework proves of use for future syntheses.

The area covered in this volume extends from Germany and Hungary on the west to the Ural Mountains on the east, from the Baltic and Arctic Seas on the north to the lower Danube and the Black and Caspian Seas on the south. The period under examination covers approximately one thousand years: from the early second millennium to the early first millennium B.C., from the period when large scale copper manufacturing began in central Europe to the times when iron gradually supplanted bronze.

The north Caucasian metallurgical center, active from *ca.* 2200 B.C., supplied southern Russia and the Ukraine with copper artifacts. The central European copper-producing areas in the Carpathian Mountains gradually gained importance during the latter part of the third and the first part of the second millennium B.C., but not until *ca.* 1800 B.C. were large-scale exploitations started in this area. The transition from a Neolithic to a Bronze Age level was a long one, and all areas were not synchronized in their development. The farther north and hence the farther from metallurgical centers, the later the Bronze Age occurred.

The end of the third and the beginning of the second millennium B.C., does not, then, demarcate the beginning of the "Bronze Age" in the strict sense of the term. "Bronze" is copper with a high percentage of tin, and a true bronze should contain about 90 percent copper and about 10 percent tin. However, in the early stage of metal technology such bronze was not used either in the northern Caucasus or in central Europe. Instead, copper-arsenic or copper-antimony alloys were used. Metal technology had a different history in each metallurgical center, depending on the existence of certain minerals in the area. Hence, the term "Bronze Age" can be a misnomer. Archaeologists apply it in a broad sense: current studies in metallurgy tend to define the beginning of the Bronze Age as when experiments with various alloys started. At the present stage of research it is known that a premeditated admixture of copper with arsenic, antimony, tin, and, in some cases, multicomponant copper-antimony-lead alloys occurred in the Caucasus and the Carpathian region not later than in the last centuries of the third millennium B.C. The problem of the use of native copper is still hypothetical.

Nuclear Areas, Spheres of Influence, and the Spread of Metallurgy

There were several nuclear areas from which influences radiated in certain directions, forming several cultural spheres of influence. There were three main metallurgical centers: one in the Caucasus Mountains, another in the southern Urals, and the third in the central European mountainous region. The cultures grouped around these centers played leading roles and exercised considerable influence on their culturally inferior neighbors. The three cultural spheres of influence are marked by different types of metal artifacts. To the first sphere belonged central Europe, the Baltic area, and southern Scandinavia; to the second, the Caucasus and the northern Pontic area (the eastern Ukraine); to the third, the lower Volga area, southern Russia in the strict sense. In the border areas like the western Ukraine and eastern Rumania (Moldavia), the central European and Caucasian spheres overlapped. These metallurgical centers and their spheres of influence are shown in figure 1.

From central Europe knowledge of metallurgy spread northward, thus creating the Northern Area Bronze Age culture (in northern Germany and southern Scandinavia) and the Baltic culture (in the southeastern Baltic area: northern and eastern Poland, East Prussia, Lithuania, and Latvia). These groups developed their own metal industries during the third quarter of the second millennium B.C. The northern Carpathian area was influenced chiefly by the metallurgical center in the southern



FIG. 1. Metallurgical centers and their spheres of influence during the Early and Middle Bronze Age. *I.* central European: *a.* Carpathian; *b.* south German and Bohemian; *II.* Caucasian; *III.* southern Ural.

Carpathians. In the beginning of the second millennium B.C., local metallurgy already existed north of the Black Sea, but weapon, ornament, and tool forms were chiefly adaptations of Caucasian models. The products of the southern Ural center spread all over the lower Volga basin, that is over the area occupied by the Timber-grave culture, the Andronovo culture east of the southern Urals in Siberia, the eastern branch of the central Russian Fat'janovo culture, and the Turbino culture in the Kama River basin and the middle Urals.

Cultures: their Continuity and Expansion

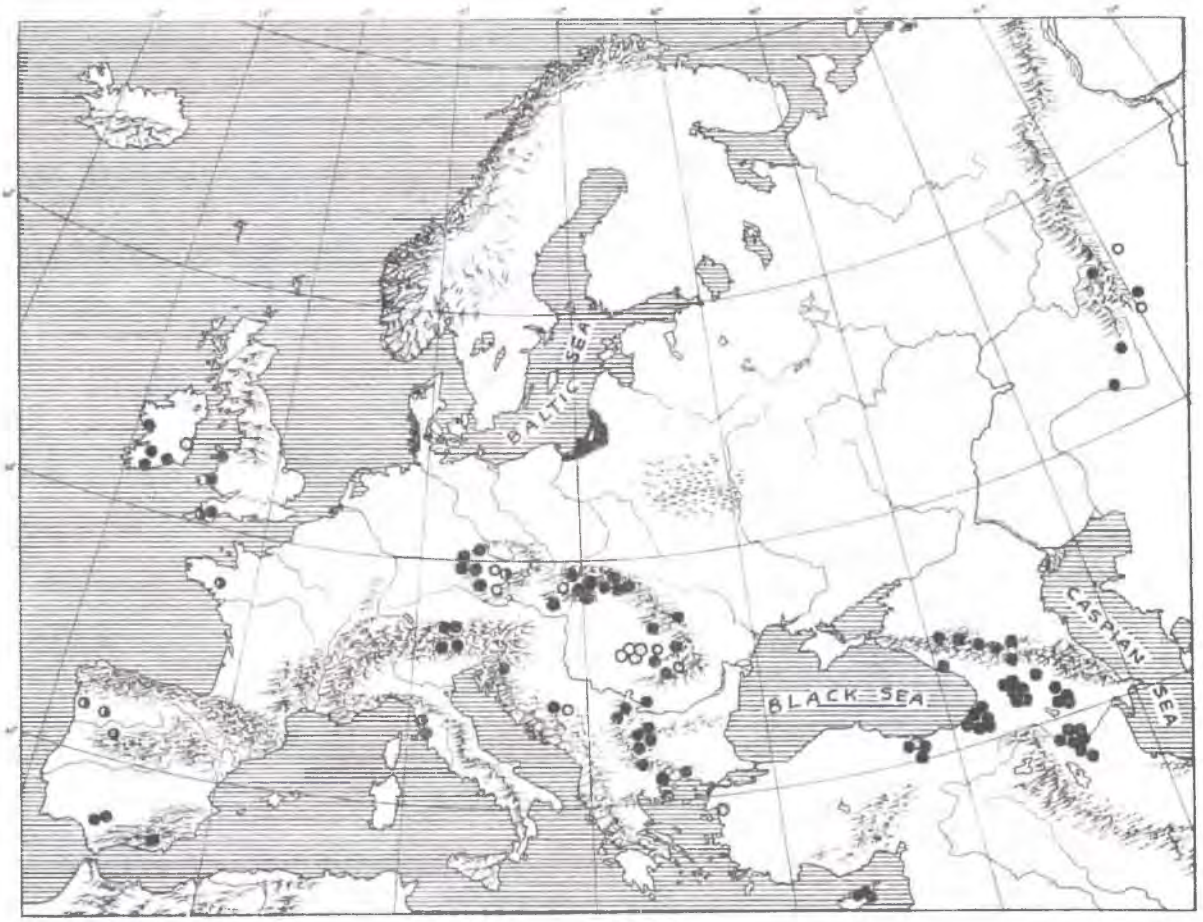
The major goal of this monograph is to define the central and east European Bronze Age cultures, and the formation, distribution, continuity, and expansion or disintegration of each. None of the cultures treated in this volume has been previously described period by period. Reports have been made on separate assemblages, hoards, or a single period of a culture, and there have been monographs dealing with the archaeology of a given country or a province. Not even the central European Únětice-Tumulus-Urnfield cultural continuity, the greatest Bronze Age sequence of Europe, has been described as a whole; only typological descriptions of finds have prevailed for this area. Nor has the north Carpathian group been treated in its entirety, although its chronological phases, like the Bilopotok or Komarov stages, have been described. The Baltic culture in East Prussia, western Lithuania, and western Latvia has been dealt with, but its western part in eastern Pomerania has either been treated separately without a label or grouped with the Northern Area Bronze Age. The Bronze Age culture north of the Black Sea in the eastern Ukraine, the Crimea, and the northern Caucasus, has been lumped together with the Timber-grave culture of southern Russia completely confusing the picture of Cimmerian and Scythian origins. Only recently, after several decades of very intensive excavations has it become possible to isolate certain cultural units. Such is the case in the eastern part of Russia; the large cultural bloc between central Russia and northwestern Siberia, until lately ill-defined, is now called the Turbino culture.

Here I shall review the cultural groups of the area specified above, starting with the central European cultures, proceeding to the cultural groups in the north Pontic and Caucasian areas, the Volga River and the Urals, and finally dealing with the northern Russian groups. Each of these had its own cultural pattern, although certain similarities with other groups arose from commercial association or from similar natural resources.

Trade routes, which originated in the central European, Caucasian, and southern Ural copper areas, in the amber areas of the southeastern Baltic and Jutland, and in the gold centers of Ireland, Bohemia, and Transylvania (fig. 2), criss-crossed the European continent, bringing many cultures into contact with each other. Commercial ties with the Mediterranean, mainly the Mycenaean culture, and with the Near East via the Caucasus, continually brought new influences to bear on the cultures we are considering.

On the basis of archaeological evidence of social structure, settlement patterns, art, and religion, these cultures can be classified into two large blocs: southern and northern. These blocs are not cultural spheres recognizable by the distribution of technological forms; they are rather two large ethnic families. The village type, architecture, social structure, burial rites, and art are indisputably alike in the North Pontic, Timber-grave, central Russian Fat'janovo, North Carpathian, east central European-Transylvanian Otomani, eastern Rumanian Monteoru, central European Únětice-Tumulus-Urnfield, southeastern Baltic, and western Russian cultures. These people lived in fortified villages on elevations or high riverbanks and in rectangular timber houses; the use of vehicles and bridled horses is evident in almost all of these groups. They buried their dead in graves which were imitations of houses and built of timber, stone, or other materials, usually under barrows. They held in high esteem the sun, fire, and domestic animals, including horses as seen from sacrificial places, grave offerings, the transition to cremation rites, and the use of symbols in art.

The northern Baltic area, northern Russia, and northwestern Siberia encompass the cultural groups of the northern bloc. These differ from the southern in burial rites (burial in the extended position, the absence of barrows and of the house-grave idea, the absence of cremation, etc.), in pottery (primitive, round-based), in decorative motifs (entirely different: dentate stamp impressions predominant), and in house type (semi-subterranean houses connected by corridors). The cultures of the northern bloc, being more primitive, show much more similarity over an enormous territory. One of the largest groups, the Turbino culture, spread from northwestern Siberia to the upper Volga basin in central Russia. It continued into and persisted during the Iron Age. Toward the end of the Bronze Age and during the



● ● ● copper ore

● ● ● tin ore

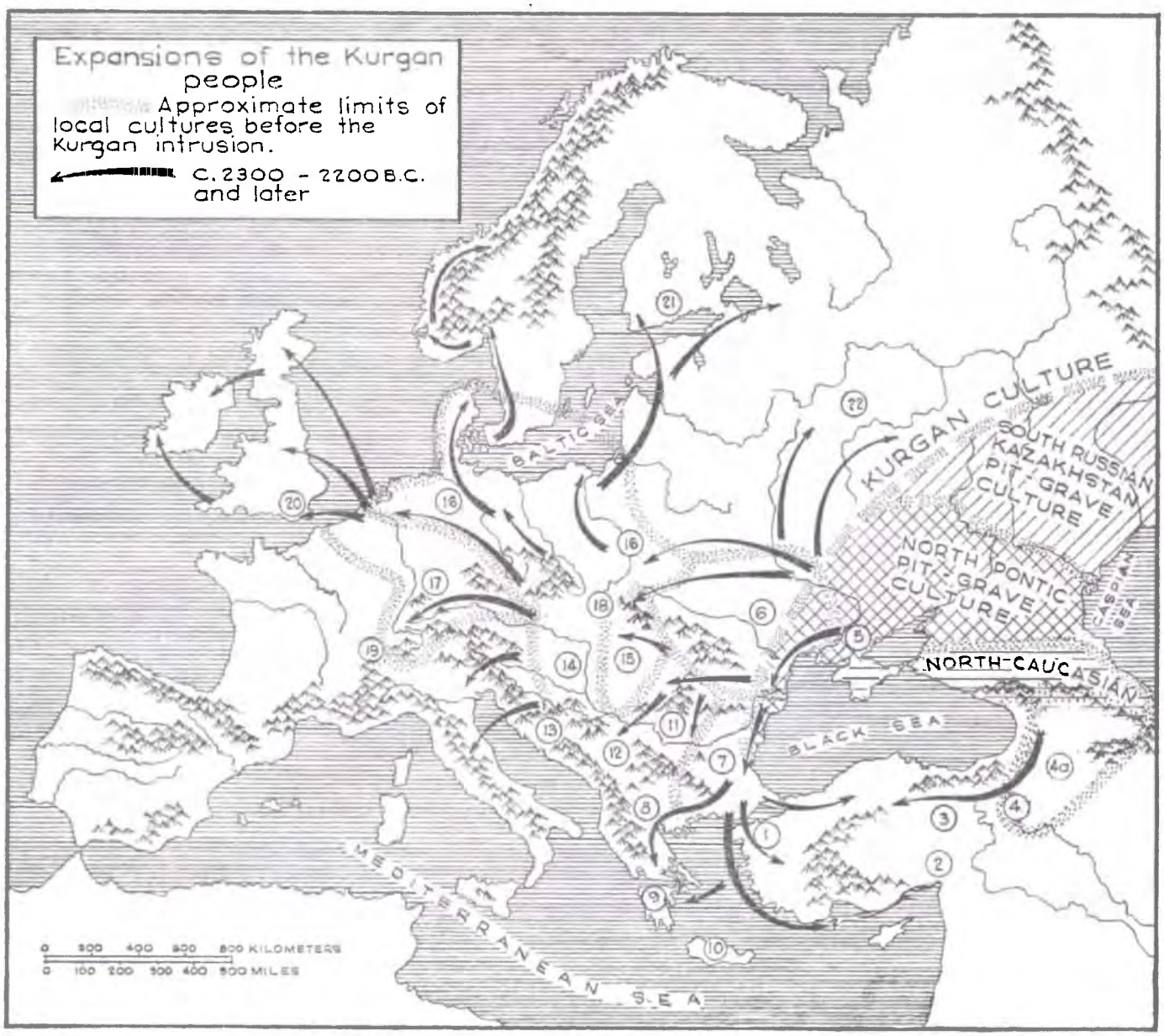
o o o gold ore

■ sources of amber

FIG. 2. Sources of copper, tin, gold, and amber in Europe.

Early Iron Age certain local cultural variations are apparent. They finally developed into Iron Age groups indistinguishable from the tribes known historically and linguistically as Finno-Ugrian, which inhabited the northern central and eastern Russian territory and beyond the Urals. West of the Turbino culture in northwestern Russia and Finno-Karelia was a Pit- and Comb-marked pottery group of hunter-fishers different from, yet related to, the Turbino culture.

The local cultural groups of the southern bloc were formed after the great expansion during the second half of the third millennium B.C. of the Kurgan Pit-grave people from the Eurasiatic steppes. A new people may have arrived no later than 2300-2200 B.C. in the eastern Balkans, the Aegean area, western Anatolia, central Europe, all of the western and eastern Baltic area, and central Russia (map 1). There is no other possible explanation of the great changes in cultural configurations and developments than an invasion of new people who were responsible for the disintegration of the old European cultures and for the creation of a new set of cultural groups. The Kurgan people must also be considered as



MAP 1.

KEY: *Arrows* indicate tentative directions of the diffusion of Kurgan elements or destruction.
Numbers indicate Neolithic, Chalcolithic and Early Bronze age cultures before the appearance of Kurgan elements.

1. Troy I and II; **2.** Cilician Early Bronze Age; **3.** Central Anatolian; **4.** and **4a.** East Anatolian and Transcaucasian Early Bronze Age; **5.** Dnieper-Donets; **6.** Tripolye (Cucuteni-Tripolye); **7.** Gumelniţa; **8.** Early Macedonian Bronze Age; **10.** Early Minoan; **11.** Salcuţa; **12.** Late Vinca – Bubanj-Hum I; **13.** Butmir; **14.** Lengyel survivals (Danubian III); **15.** Tisza survivals (Tisza-Polgár and Bodrogkeresztur); **16.** Northern Funnel-necked Beaker (TRB) complex; **17.** Southwestern Funnel-necked Beaker complex (Michelsberg on the Rhine, Pfyn in eastern Switzerland, Altheim on the upper Danube in Bavaria); **18.** Southeastern Funnel-necked Beaker complex, succeeded by Channelled-Ware (or Baden) culture; **19.** Horgen; **20.** Windmill-Hill; **21.** Comb-marked Pottery; **22.** Pit-marked Pottery.

Note: the *Kurgan Culture* is shown after its expansion from east of the lower Volga to the Black Sea and the northern Caucasus and already differentiated into the North Caucasian (or Majkop), North Pontic Pit-grave and Catacomb-grave and South Russian-Poltavka variants (*ca.* 2200-1800 B.C.).

playing an important role in the rise of local metallurgy, since they probably brought with them metallurgical knowledge obtained in the Caucasus.

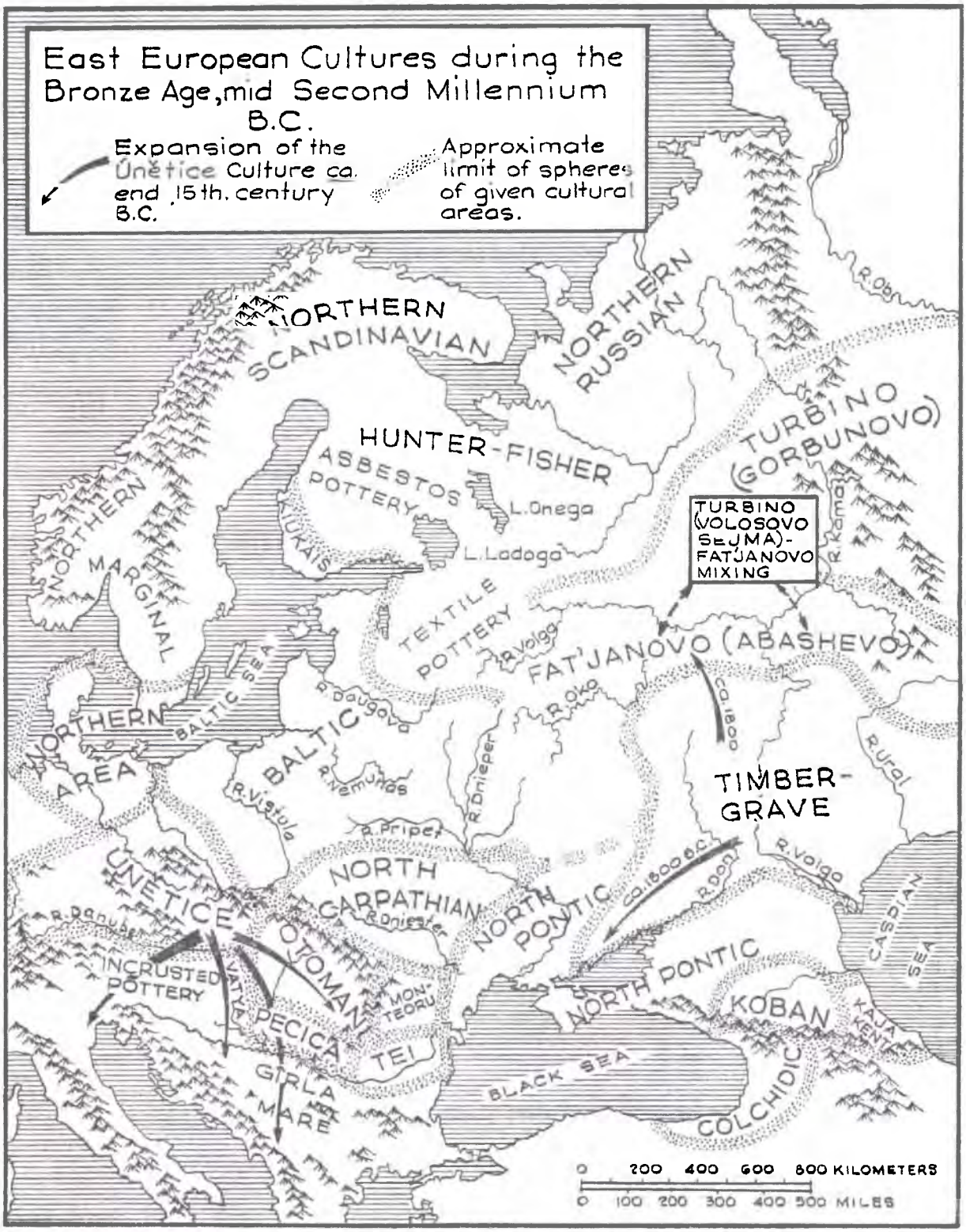
The Kurgan people came to the Black Sea area around one millennium earlier when forested conditions over the present steppe area still prevailed. Perhaps the dessication of the climate toward the end of the third millennium B.C., in combination with their possession of horses, vehicles, knowledge of metallurgy, and social and economic structure as well, have to be reckoned with among the causes for their westward, northward, and southward expansion.

These people brought to Europe cultural elements which offered a great contrast to the Painted Pottery groups of Gumelniţa and Cucuteni-Tripolye in the eastern Balkans and the western Ukraine, to the Salcuţa group in the central Balkans, to the Tisza-Polgár and Baden cultures in eastern central Europe, and to the Funnel Beaker groups in central and northern Europe. The old European cultures were disturbed, and most were sooner or later assimilated to the Kurgans, although islands of local culture survived for centuries, some persisting throughout the Early Bronze Age. The presence of a varied sub-stratum and a different physical environment led of necessity to the differentiation of the Kurgan culture into a series of local groups which emerged in the beginning of the second millennium B.C.

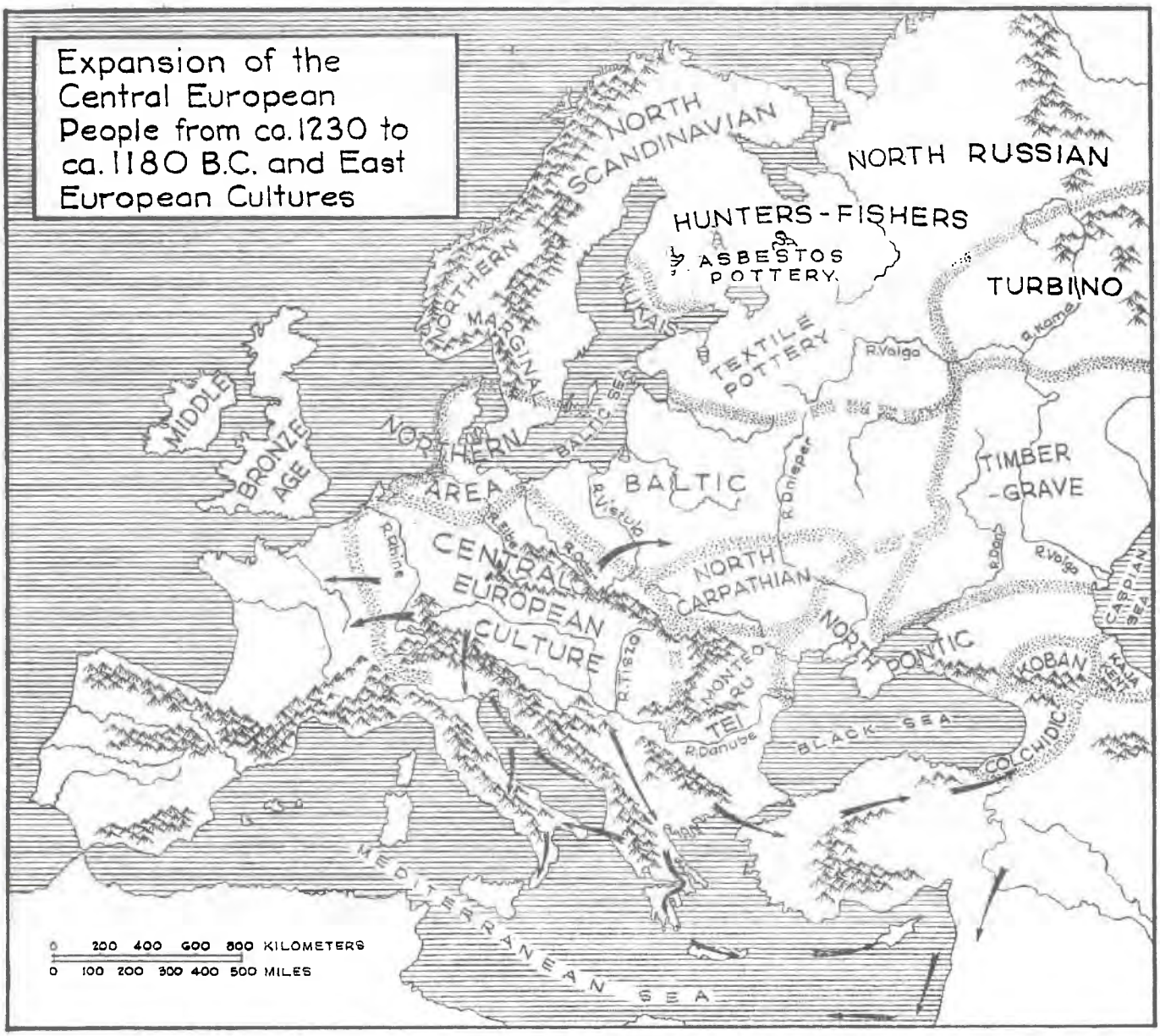
After the formative period of the first centuries of the second millennium B.C., a new and powerful nucleus emerged in central Europe based on exploitation of the copper sources in the western Carpathians, and later of sources in the Bohemian and central German mountains. This was the Únětice culture. Near the end of the fifteenth century B.C., the Ún̆ticians expanded into the Danubian plain in Hungary and Yugoslavia, and to Transylvania (map 2). During the subsequent periods they are called the Tumulus people. They monopolized the richest part of Europe, with its fertile lands and copper and gold mining areas. Shortly after the middle of the thirteenth century B.C., the central European people started to expand southwards to Italy, Greece, and Anatolia and brought about the destruction of the Mycenaean civilization and the Hittite Empire (map 3).

Another area of continuous unrest was the steppe region of the lower Volga and beyond. Here the Timber-grave culture was the power to be reckoned with. Early in the second millennium B.C. it spread westward to the northern shores of the Sea of Azov and to the basin of the Donets River and north into the lower Oka in central Russia (map 2). In about the last century of the second millennium B.C. the area of the lower Dnieper and lower Dniester was occupied (map 4), and this vigorous Timber-grave or proto-Scythian expansion did not cease until the eighth century B.C. and later.

The European Bronze Age was a rather tumultuous period not much less stormy than the coming Iron Age, with its further Scythian, Celtic, and Germanic migrations. The period examined in this book lies between the two great westward expansions of the inhabitants of the steppe: the Kurgan people, whom I consider Proto-Indo-Europeans, in the last quarter of the third millennium B.C., and the Scythians at the end of the eighth century B.C.


East European Cultures during the Bronze Age, mid Second Millennium B.C.
Expansion of the Únětice Culture ca. end 15th. century B.C.
Approximate limit of spheres of given cultural areas.
NORTHERN SCANDINAVIAN
NORTHERN RUSSIAN
HUNTER-FISHER
ASBESTOS POTTERY
L. Onega
L. Ladoga
TURBINO (GORBUNOVO)
TURBINO (VOLOSOVO SEJMA)-FATJANOVO MIXING
NORTHERN MARGINAL
TEXTILE POTTERY
FAT'JANOVO (ABASHEVO)
NORTHERN BALTIC AREA
BALTIC
TIMBER-GRAVE
CA. 1800
CA. 1800 B.C.
UNĚTICE
NORTH CARPATHIAN
NORTH PONTIC
INCRUSTED POTTERY
OTOMANI
PECICA
TEI
GIRLA MARE
KOBAN
COLCHIDIC
BLACK SEA
CASPIAN SEA
R. Oka
R. Volga
R. Dnieper
R. Vistula
R. Pripet
R. Danube
R. Don
R. Rural
0 200 400 600 800 KILOMETERS
0 100 200 300 400 500 MILES

MAP 2.


Expansion of the Central European People from ca. 1230 to ca. 1180 B.C. and East European Cultures
NORTH SCANDINAVIAN
NORTH RUSSIAN
HUNTERS-FISHERS
ASBESTOS POTTERY
TURBINO
NORTHERN MARGINAL
NUKAIS
TEXTILE POTTERY
R. Volga
R. Kama
MIDDLE BRONZE AGE
NORTHERN AREA
BALTIC
BALTIC
R. Vistula
R. Dniepr
TIMBER-GRAVE
R. Rhine
CENTRAL EUROPEAN CULTURE
NORTH CARPATHIAN
R. Volga
CASPIAN SEA
NORTH PONTIC
KOBAN
KEMI OBA
R. Tisza
MONTEORU
TEI
R. Danube
BLACK SEA
COLCHIDIC
MEDITERRANEAN SEA
0 200 400 600 800 KILOMETERS
0 100 200 300 400 500 MILES

MAP 3.


East European Cultures during the end of the Bronze Age
Expansion at ca. 1100 B.C.
Approximate limit of spheres of given cultural areas.
NORTHERN SCANDINAVIAN
NORTHERN RUSSIAN
R.Ob
HUNTER-FISHER
ASBESTOS POTTERY
L.Onega
L.Ladoga
TURBINO
R.Kama
NORTHERN MARGINAL
TEXTILE POTTERY
R.Volga
R.Dvina
R.Dauguva
R.Oka
NORTHERN AREA
BALTIC
BALTIC
R.Vistula
R.Nemunas
R.Dnieper
"BONDARIKHA" BALTIC
TIMBER-GRAVE
R.Volga
Rural
R.Pripet
R.Oder
NORTH CARPATHIAN
CENTRAL EUROPEAN CULTURE
R.Danube
R.Dniester
NORTH PONTIC
R.Don
R.Volga
MONTEORU
KOBAN
KAJAKENT
TEI
R.Danube
BLACK SEA
COLCHIDIC
0 200 400 600 800 KILOMETERS
0 100 200 300 400 500 MILES

MAP 4.

INTRODUCTION

To establish the chronology I have used stratigraphy; the method of correlation based on comparisons of the assemblages; and synchronizations based on identical trade objects found in the different assemblages. Trade was transcontinental, and some objects were distributed over wide areas, allowing us to synchronize a whole chain of cultures. In fortunate instances, trade objects link the central and eastern European cultures to the historic areas in the south, providing evidence for absolute dating. In describing cultural relationships in this large territory, the synchronization of the assemblages is fundamental. Therefore, the first chapter in this volume is dedicated to defining the chronology of different cultural groups on the basis of commercial or military relations.

Climatic change as indicated by pollen analysis does not serve as effectively for the establishment of chronology in the Bronze Age as it did in the Stone Age. A Sub-Boreal climate persisted throughout the period, and radical changes in climate which would have caused greater changes in vegetation did not occur. Pollen data are, therefore, only of secondary importance. In the northern forested zone, however, where Stone Age cultural levels persisted, such data are of use. The pollens from the peat bogs in the middle Urals have shown fluctuations in climate during the Sub-Boreal period from a dry to a wetter climate and back to a dry one. These changes of short duration serve in a few cases to synchronize the archaeological material.

So far, carbon-14 dates are not available for any of the east European Bronze Age sites. In this case one must rely on cross-correlations from outside. Carbon-14 dates made for Bronze Age finds in northwestern Europe more or less agree with the archaeological dates in central Europe. For the beginning of the Bronze Age the dates of the Bell Beaker culture in Germany obtained by carbon-14 dating are of importance. They fall between *ca.* 2200-2100 and 1800-1700 B.C. In Heidmoor, district of Segeberg in Schleswig-Holstein, the Bell Beaker layer was above a Neolithic Funnel Beaker moor settlement. Wood from 5 cm below the Bell Beaker layer dated 2020 $\pm$ 170 B.C., while carbonized wood found 5 cm above the top Bell Beaker layer dated 1770 $\pm$ 150 B.C. (Münnich, 1957; Thomas, 1961; *note*: dates are not corrected for a half life of 5730 $\pm$ 30). About the same time horizon is indicated by the radiocarbon date for a sample of charred grain from a storage pit at Burgliebenau near Merseburg in eastern Germany from the time of the transition from the end Neolithic to Early Bronze Age. It was dated by the Groningen laboratory to 1950$\pm$150 B.C. (De Vries, Barendsen, Waterbolk, 1958; Thomas, 1961). The twentieth-nineteenth centuries B.C. are a very probable date for the Bell Beakers. Several carbon-14 dates for the early corded beakers were obtained in the Netherlands. One was for the beaker from Ede in southern Veluwe: 2240$\pm$120 B.C. or 4195$\pm$120 B.P.; the other for the beaker from Schaarsbergen: 2485$\pm$320 B.C. or 4435$\pm$320 B.P. (Waals and Glasbergen, 1955). These dates indicate that the earliest corded beakers precede the bell beakers in northwestern Europe. The Únětice culture in central Europe, with which a real metal culture starts, immediately succeeds the Bell Beaker and the Corded period. The radiocarbon dates for the later Bronze Age periods in the Netherlands also show the broad outlines of its chronology. The dates of samples from the tumuli of Toterfout-Halve-Mijl indicate a range between 1500$\pm$85 and 870$\pm$140 B.C. for the Tumulus culture in the Netherlands and Belgium (see summary of these dates: Thomas, 1961). Measurements of the whole series of samples from un-

disturbed deposits in stratigraphic sequences of the central and eastern European Bronze Age sites will have to be done in order to obtain the carbon-14 dates for many Bronze Age phases. The few dates available are already of great assistance since they correlate well with recent archaeological concepts.

Absolute dates referred to in this monograph are mostly derived from the chronology of Greece. Mycenaean, Submycenaean, and Protogeometric connections are very important for establishing the central European Bronze Age chronology. The Únětice-Tumulus-Urnfield culture with its very rich Bronze Age materials, obtained from thousands of hoards, graves, and from habitation sites, certainly is the backbone of the European Bronze Age chronology outside Greece. The Únětice-Tumulus-Urnfield chronology is applicable to many cultural groups adjacent to central Europe because they belong to the central European sphere of influence. Thus it applies to the Northern Area, Baltic, and North Carpathian cultures. The dates of the Caucasian sphere including the northern Pontic area are based on the absolute dates of the Near Eastern cultures to which the Caucasus was linked throughout all the periods of the Bronze Age. However, the cross-dating with the central European and Mycenaean chronology is very useful. The western Pontic area serves a transitional zone where central European and Aegean forms meet with the Caucasian products. The wide distribution of some bronzes over the North Eurasian forested plain allows us to tie the northern Russian and middle Ural assemblages to the Chinese chronology.

In many cultural groups the local stratigraphies have yielded complete sequences, thus providing us with a means of checking the chronology established on the basis of intertribal trade.

The European cultures of this time did not live in isolation. Ever since the end of the third millennium B.C., when intensive trade was carried on by the Bell Beaker and Kurgan peoples, transcontinental trading activities had been maintained. The trade routes, which tied together the various cultures of north and south or east and west, enable us to establish the contemporaneity of certain cultures. Weapons, tools, ornaments or ornamental motifs, amber and faïence beads are the indicators of the communications existing between the historic world of the Near East and Egypt, Greece, Crete, and the so-called "barbarian" north. They also suggest the nature of the interrelationship of local cultures with one another. The spread of copper or bronze, gold or silver earrings, hair-rings, pins, bracelets, neck-rings, axes, daggers, swords, bronze vessels, etc., into marginal zones gives us some hope of cross-dating even the most widely separated cultures here.

Hence, by tracing the distribution of articles used in trade or brought by moving peoples, and by studying the local stratigraphies and typological developments, we can determine which cultures were contemporaneous. It is necessary to stress here that trade objects alone are not sufficient bases for a synchronic framework. Items such as amber or faïence beads were used in trade over a long time and their forms did not change appreciably. Therefore, in many instances they are merely evidence of commerical contacts but do not fix any definite time horizon. Of importance are the *assemblages* of finds – the hoards, graves, and collections from habitation sites – in which certain "diagnostic" forms prevalent over a large territory appear in association with other finds. The 'diagnostic' forms, such as pins, fibulae or swords, represent constant innovations, they belong to the dynamic side of life, and therefore serve as time markers. In all the periods there never occurred such a break in a culture that all forms stopped existing at the same time and completely new forms appeared. Even in the case of migrations, we cannot find the rapid disappearance of local forms. Only foreign elements appear in abundance and, from the merger of old and new, hybrid forms are gradually born.

In this chapter I will attempt to synchronize the cultures of central Europe, eastern central Europe north of the Danube, the Baltic area and Russia with those of Greece and Italy, and, in some instances, with those of the Near East. The purpose is: 1) to build a chronological framework on which the further description of cultures will be based, and 2) to show commercial relations. Only the most indicative examples which witness the intercultural relations or date the assemblages will be shown. Many of the indicative or diagnostic forms showing connections between central Europe and Greece or Italy have

been studied already by a number of archaeologists in recent decades (Childe, Hawkes, Merhart, Milojčić, Müller-Karpe, and others). I shall repeat them again with additions, extensions to the east, and with my own views on the problem of synchronization.

The use of different labeling systems in central, northern, eastern central, western Europe, in the Caucasus, the Pontic area, the Urals and elsewhere causes great confusion for anyone attempting to view the chronological sequence over a large area. Therefore, the use of dated epochs is preferable by far, and it is possible to use dates because of the many ties to the historical south. However, for some dates used in the chronological tables a margin of error of from 50 to 100 years must be allowed.

The period under examination is traditionally apportioned into three major divisions, the Early, Middle, and Late Bronze Ages, and each of them into intervals lasting from 100 (or less) to 150 (or more) years each. My dates which I apply to all of central and eastern Europe, based on cultural developments of central European Únětice-Tumulus-Urnfield culture, are:

Early Bronze Age, *ca.* 1800 B.C. - 1450 B.C.
Middle Bronze Age, *ca.* 1450 B.C. - 1250 B.C.
Late Bronze Age, *ca.* 1250 B.C. - 750 B.C.

The Early Bronze Age is a period of progressing metallurgy in central Europe, the Caucasus, and the southern Urals. This is a time of the formation of vigorous cultures like the Únětice in central Europe, Otomani in Transylvania, or the Timber-grave culture in the lower Volga basin. A considerable efflorescence of metallurgy is seen in the sixteenth and fifteenth centuries B.C. when bronze artifacts in greater numbers spread even to the marginal areas.

The five centuries or so preceding the European Bronze Age belong to the Chalcolithic period in most parts of Europe except the southern Carpathian basin and the Ponto-Caucasian region. In the latter areas Early Bronze Age started in the third millennium B.C., but is called "Copper Age".

The *Middle Bronze Age* is marked in central Europe by growth and expansion of the Tumulus people, the heirs of the Early Bronze Age Únětician. This entirely changed the cultural pattern and grouping in eastern central Europe. Strong central European influences spread over a large part of Europe between eastern France, southern Scandinavia, the east Baltic area, the lower Danube and the northern Adriatic coasts. In southern Russia (the lower Volga area) this is the flourishing period of the Timber-grave culture, and in northeastern Russia, of the Turbino culture.

The *Late Bronze Age* is the Urnfield period in central Europe, that is, domination by the same Únětice-Tumulus people who now use cremation instead of inhumation in burial. The influence of the Urnfield culture in connection with its expansion southward in the second half of the thirteenth and the beginning of the twelfth centuries B.C. covered not only the whole middle part of Europe, but also the Apennine Peninsula, the Adriatic, the Aegean and the eastern Mediterranean areas. The metal industry reached its apogee. The Urnfield period is divided into five chronological phases, Urnfield I-V. Until about 750/700 B.C. iron did not penetrate most of the cultures described, and where it did in southern parts of central Europe since the twelfth century B.C., it was still of little significance. Around 1100 B.C. the Timber-grave people launched a forceful expansion toward the west to the lower Dnieper and lower Dniester basins. From this date on, they dominated in the northern Pontic region. In the late eighth century B.C. the same steppe people appeared in eastern central Europe causing changes in ethnic configurations and bringing oriental elements to Europe. The rise of the Early Iron Age and the Hallstatt culture was roughly coincident with these new events.

I

EARLY BRONZE AGE

Ca. 1800 B.C. - *ca.* 1450 B.C.

A. EARLY BRONZE AGE FROM CA. 1800 B.C. – CA. 1650 B.C.

Three streams of influences were responsible for the birth of the central European Bronze Age:

1) the Caucasian, brought by the Eurasiatic steppe or *Kurgan* people around 2300-2200 B.C.;
2) the Near Eastern, obtained by trade via the Balkans, the Aegean, and the eastern Mediterranean;
3) the western European Bell Beaker, brought by groups of the mobile folk who before the end of the third millennium or around 2000 B.C. reached central Europe as far as Hungary and southern Poland.

The Caucasian, Near Eastern and Bell Beaker metal forms were imitated by central European smiths. Around 1800 B.C. from this merger an individual metal culture arose, created by the peoples of Kurgan origin, the Únětician in central Europe and the Otomanians in Transylvania.

All of the influences mentioned have played their roles in molding the shape of the European Early Bronze Age. Central European dagger forms owe much to the Bell Beaker and Caucasian shapes, axe forms to the Caucasian and Near Eastern shapes, and almost all ornaments to the Near Eastern ornament forms.

1. *Commercial relations between eastern central Europe and the Near East*

Commercial relations between eastern central Europe (the middle and lower Danube area) continued from Neolithic times into the first centuries of the second millennium B.C. The Pecica people (also known as Periam) in the lower Tisza basin were the chief transmitters of the Near Eastern metal forms to the north. The Únětician and Otomanians apparently had no direct trade relations with the eastern Mediterranean; oriental metal objects were obtained through intertribal exchange. Gradually these spread to the whole Danube basin: to the Nagyrév group on the middle Danube south of Budapest, to the Kisapostag group in western Hungary, and ultimately to their northern neighbors.

The trade routes probably were about the same as during the Neolithic and Chalcolithic times: central Balkan Morava and Vardar (Axios) rivers, the Aegean Sea, the western and southern coasts of Asia Minor leading to Cilicia, Cyprus, Syria, and Palestine (fig. 3, *3*).

Almost all metal artifacts used by the Pecica people and imitated by their northern neighbors have analogies or prototypes in the Near East between Egypt and northern Iran, the most numerous and closest parallels being along the Syrian-Palestinian coast and on Cyprus. These are: neck-rings with rolled ends, curved shank pins with knot heads, called Cypriote pins, or with simple spiral or loop heads, sheet-metal belt plates with rolled ends and embossed decoration, cylinders wound of thin copper wire, double-wire spiral rings, earrings with flattened ends, plain spiral bracelets, and double-spiral pendants. Since a great number of these ornaments were found in the site at Byblos, Syria, for the sake of convenience they may be labeled "Byblos types" (Dunand, 1937). In Byblos they date from the period between 2100 to 1750 B.C. Roughly the same date is indicated by the other sites in Syria, Palestine, Iraq, and Iran. The same types of neck-rings, loop-headed pins, and cylinders wound of thin wire are



FIG. 3. Near Eastern influences on central European Early Bronze Age and the distribution of faïence beads.

1. Area of heavy distribution of imports or their imitations of Near Eastern ornaments and daggers.
2. Routes of diffusion of metal types produced in central Europe but modeled on Near Eastern examples.
3. Trade between central Europe and the Near East.
4. Near Eastern sites in which close parallels to east central European ornaments are found: 1. Ugarit (Ras Shamra); 2. El Hamman; 3. Tell As; 4. Hama; 5. Byblos; 6. Megiddo; 7. Cyprus.
5. Distribution of faïence beads between the beginning of the second millennium and *ca.* fourteenth century *B.C.* Based on Stone and Thomas, 1957, with additions.

known from the Middle Ugarit 1 level at Ras Shamra (Schaeffer, 1949, pp. 49-60), and neck-rings from level II at Hama, Syria, dated to 2000-1750 B.C. (Schaeffer, 1949, p. 107). North of Hama the cemetery at Tell As, dated to *ca.* 2100-1750 B.C., yielded the same series of ornaments which have analogies in Byblos and central Europe (Mesnil du Buisson, 1932, pp. 171-188), and there are many more sites in Iraq, Iran, Palestine, Syria, and Anatolia containing neck-rings, bracelets, spiral finger-rings, earrings or hair-rings with flattened ends, wire cylinders, double-spiral pendants, and curved shank pins with looped tops or knot heads.

There is no doubt that the ornaments just mentioned, as well as flanged and flat axes, "Cypriote" daggers (fig. 4, *2*), and riveted daggers first were made in the Near East and then were distributed to eastern central Europe, as they are dated at a much earlier period in the Near East, many of the prototypes

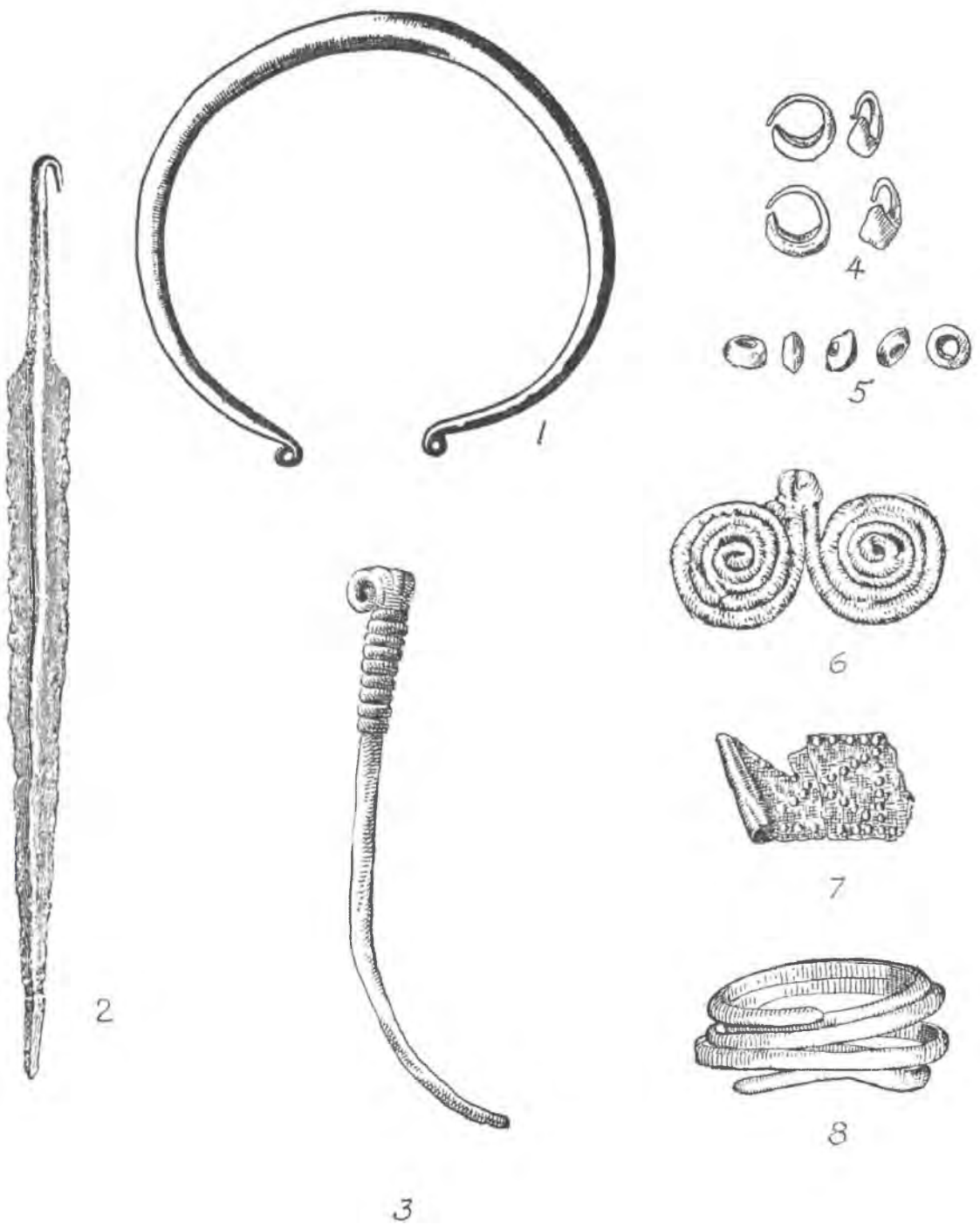


FIG. 4. Copper or "bronze", gold and faïence objects in eastern Hungary and western Rumania having prototypes in the Near East. **1,** neck-ring; **2,** "Cypriote" dagger; **3,** "Cypriote" knot-headed pin; **4,** gold hair-rings or earrings; **5,** faïence beads; **6,** double-spiral pendant; **7,** sheet-metal belt plate; **8,** bracelet. **1, 3-5** from the early Pecica site at Ó Beba (Beba Veche) at the border between Hungary and Rumania; **2,** Czorvás, and **6-8,** Periam (Periamuş) early Pecica sites, both in the lower Mures area. Scale: **1, 2, 8** 1/2; **3, 5-7** 1/1. **1,** *after* Childe, 1929; **2,** *after* Pulzsky, 1884; **3,** *by courtesy* of Dr. I. Bóna; **4-8** *after* Popescu, 1944.

reaching the middle of the third millennium B.C. A resemblance between ornaments from the Byblos, Ras Shamra, and Hama sites, particularly from the levels which date from the period between 2100 and 1750 B.C., and the contemporary cemeteries like Tell As and El Hamman, and ornaments from central Europe indicate the spread of Near Eastern types of ornaments and other copper artifacts probably no later than 1900-1800 B.C. The earliest types of necklets (fig. 4, *1*), knot-headed (fig. 4, *3*) and loop-headed pins, spiral bracelets (fig. 4, *8*), earrings or hair-rings (fig. 4, *4*), double-spiral pendants (fig. 4, *6*), spiral wound cylinders (pl. 1, *11*), copper plates with rolled ends (belts or diadems?; pl. 1, *16*), and others have been found in the earliest graves of the cemeteries of Szöreg and Deszk F, in the cemetery of Pitvaros in eastern Hungary near Szeged, and in the cemetery of Ó Beba and the site of Periam on the lower Mureş in western Rumania. The Near Eastern imports had a very strong influence on the development of the central European Únětice culture, giving rise to the series of basic types of necklets, pins, bracelets, hair-rings, pendants, and belt plates. The early Únětice metallurgists imitated many forms of imported ornaments from the Near East. The local Únětician copper artifacts must therefore have been created after the first appearance of Near Eastern imports in the Danube area. The eighteenth century B.C. seems to be a very probable date.

2. *Roughly coeval assemblages in central and eastern Europe as shown by widely distributed classes of artifacts*

Even though the trade of this period never reached the intensity of the sixteenth and fifteenth centuries B.C., several widely distributed classes of artifacts permit us to recognize contemporary assemblages in a large area between central Europe, the Baltic Sea, the Black Sea, and the lower Volga area. For chronological purposes I have picked out peculiar ring pendants made of amber, bone, or clay, copper and gold earrings, and faïence beads, as objects having a considerable diagnostic value for the early part of the Early Bronze Age.

a. *Assemblages associated with ring pendants*

Ring pendants of amber, bone, or clay, with a circular hole in the center and a small perforation for suspension, occur all over the area between the Baltic and Black Sea. Their distribution is shown in figure 5.

In several graves they were found placed close to the neck of the deceased; probably they were worn on a string around the neck as solar amulets. Prototypes in copper occur in the northern Caucasus dating from the Middle Kuban period which is *ca.* 2000 or the very beginning of the second millennium B.C. (fig. 327, *2*). These amulets apparently were brought to Europe by the Kurgan people together with many other oriental elements and continued to be made by their heirs for several centuries. The material of which they were made, particularly amber and copper, speaks for their symbolic significance. In central Europe they were borrowed by the Bell Beaker people. They appear in late Bell Beaker graves and in the earliest Únětice graves, often in elongated shape (pl. 2, *1*).

Ring pendants appeared in graves or habitation sites of

1) the late Corded Pottery people in the southern and southeastern Baltic area (fig. 6, *1-3*), in eastern Poland and Volynia (fig. 6, *4*);
2) the Únětice in central Europe (fig. 7, *a*, *1*, *2*);
3) the Pecica people in the lower Tisza and Mureş basins (pl. 1, *9*);
4) the Usatovo people in the steppe zone of the western Ukraine (fig. 8, *1*);
4) the North Pontic people (fig. 332, *4*);
5) the Timber-grave people in the lower Volga area (fig. 9, *1*); and
6) the Monteoru people in eastern Rumania.

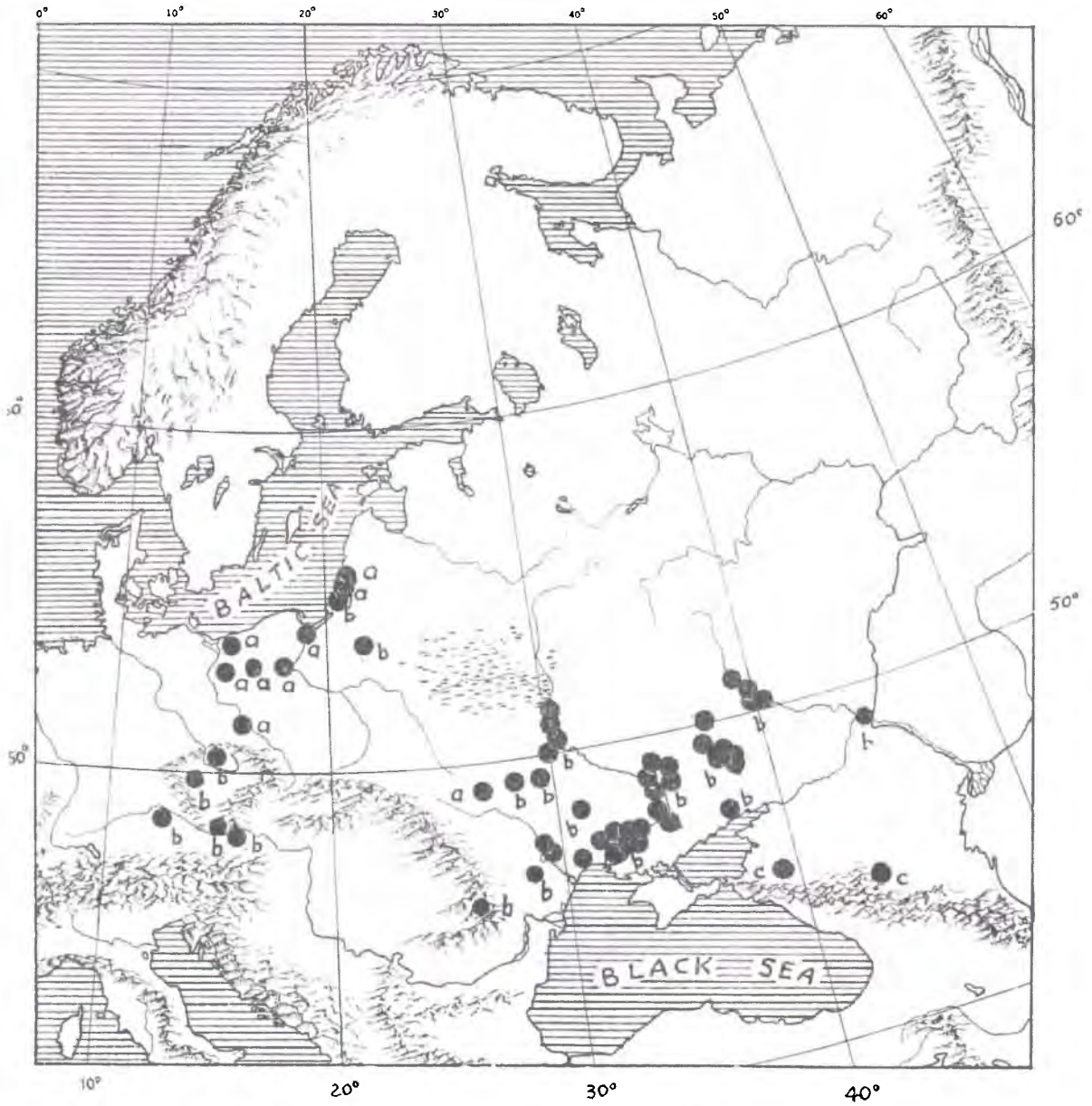


FIG. 5. Distribution of ring pendants. *a*. amber; *b*. bone; *c*. copper.

In the Unětician graves, the ring pendants, mostly of bone, were associated with typical artifacts of the earliest Bronze Age in central Europe such as knot-headed pins (fig. 7, *b*, *4*), racquet pins, short, triangular dagger blades (fig. 7, *c*, *10*), conical bronze buttons, bronze spiral beads and cylindrical bone beads (fig. 7, *b*, *6*), spiral armbands and bowls with small handles (figs. 7, *a*,*3*; 7, *b*,*8*; 7, *c*,*12*). In the early Pecica graves (cemetery of Deszk F) bone rings were in association with short, triangular copper dagger blades, diadems made of several rows of copper tubes or round convex plates, neck-rings with out-turned ends, and faïence and bone beads (Móra Ferenz Museum in Szeged, Hungary). In the south-eastern Baltic area, along with amber copies in western Lithuania (Palanga and Juodkrante; fig. 6, *1*), ring pendants made of bone were found (fig. 6, *2 left*), which were of the same shape as those found in central Europe and north of the Black Sea. In East Prussia such a bone ring was discovered in a grave together with a copper knife (fig. 6, *2*, *right*), a flint flake, and a boar's tusk. In Iwno near Szubin at the



FIG. 6. Pendants of amber and bone and objects associated with them. **1,** amber pendant from Palanga, Lithuania, isolated find; **2,** bone pendant and a fragment of a copper knife from the barrow of Ribittwen, district of Pisz (Johannis burg), East Prussia; **3,** amber pendant and corded cup from the grave at Iwno, district of Szubin in northwestern Poland; **4,** amber pendant and corded cup from the barrow of Khorostkiv (Chorostkow) near Husiatyn, western Ukraine. Scale: pendants approx. 1/2; pots approx. 1/4. *After* Puzinas, 1938 (**1**); Kilian, 1955 (**2**); Brunner, 1905 (**3**); and Kostrzewski, 1948 (**4**).

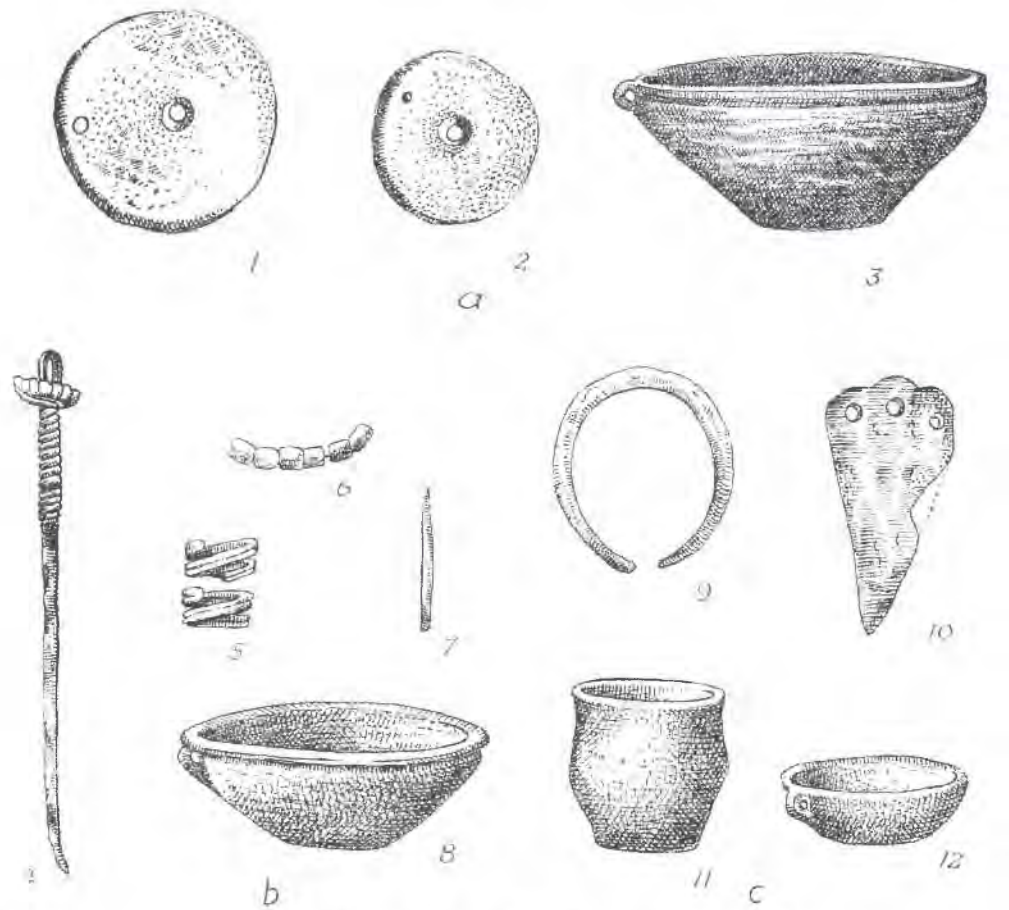


FIG. 7. **1, 2,** clay pendants in association with early Únětice finds from the cemetery of Gemeinlebarn, lower Austria; **3, 8, 11, 12,** pots; **4,** knot-headed pin of copper; **5,** copper hair-rings; **6,** copper beads; **7,** a fragment of a pin; **9,** copper bracelet; and **10,** copper dagger blade. *a.* grave No. 142; *b.* grave No. 92; *c.* grave No. 108. Scale: pots approx. 1/5, the rest approx. 1/2. *After* Szombathy, 1929.



FIG. 8. **1**, bone ring pendant in association with the black-painted **(2-4)** and plain **(5)** Usatovo vases from the cemetery of Parkany near Tiraspol, lower Dniester area. Scale: pots approx. 1/6; pendant approx. 1/3. *After* Fabritius, 1951.



FIG. 9. **1**, bone ring pendant, **2**, mold for a shaft-hole axe and **3**, pot from a timber-grave at Kievka near Voronezh, southern Russia. Scale: pendant approx. 1/3; pot and mold approx. 1/6. *After* Tallgren, 1926b.

elbow of the lower Vistula an amber ring was found in association with a flint knife and a single-handled pot decorated with horizontal rows and a zigzag band of cord impressions (fig. 6, *3*, ***right***). At Buchholz near Gryfice (Greifenhagen), lower Oder area, a similar amber pendant, 9 cm. in diameter, was found in a grave covered with stones, together with two flint daggers, a fragment of a copper bracelet, a gold band, copper tubes, and pots (fig. 165). In the barrow of Khorostkiv (Chorostków) near Husiatyn in Volynia, an amber pendant came to light, along with a handled cup decorated with horizontal cord impressions (fig. 6, *4*, ***right***). In the Jatskovitsa barrows southwest of Kiev, bone ring pendants also were found in association with corded cups (Bydłowski, 1905, p. 17). In the barrows of Usatovo near Odessa, at Parkany and Ternovka near Tiraspol on the lower Dniester, such bone pendants appeared in association with plain (fig. 8, *5*) and black-painted (fig. 8, *2-4*) Usatovo vases, copper spirals, copper pins with spiral heads, copper and flint knives, bone tools, and a small faïence bead (Goshkevich, 1903, p. 115; Fabritius, 1951, pp. 25-27). Graves in which the bone pendants were found were single or double, skeletons were contracted and on their sides. The grave-pits were covered with timber and surrounded

by a ring of stones. In an Usatovo cemetery at Stoicani in lower Moldavia, bone pendants appeared in an "ochre grave" in association with a battle-axe and pots (Petrescu-Dîmboviţa, 1953, p. 119). In the stratified site of Monteoru, eastern Rumania, a typical bone pendant was found in layer I C_2 (Bucharest: Museum of the Archaeological Institute of the Academy of Sciences; excavations by Nestor and Zaharia). In one of the kurgans (No. I) in the lower Dnieper area near Kamenka-Dneprovskaja at Kharchevik, a grave containing a circular bone pendant was definitely a secondary (later) grave in the kurgan, superimposed above the catacomb graves (Liberov, 1952, pp. 78-80, fig. 31, *2*). A bone pendant was found in the well-excavated early North Pontic habitation site at Babino in the district of Kherson (fig. 332, *4*). In the lower Volga area, ring pendants of bone were discovered in barrows containing timber constructions belonging to the earliest classical Timber-grave culture. The Kievka barrow near Voronezh yielded a bone pendant in association with a pot (fig. 9, *3*) and a stone mold for shaft-hole axes (fig. 9, *2*). Another example, from the lower Volga area is illustrated in figure 373, *2*.

Most of the ring pendants were locally made and only those of amber were traded in a relatively large area between the Baltic Sea and the Ukraine. They indicate, however, close relations between many tribes. Other trade objects such as copper or gold earrings and faïence beads confirm the above illustrated find assemblages as coeval.

b. *Basket-shaped earrings, axes, daggers, and their associations*

Earrings were in great demand jewelry items and from their production area in the Carpathian region were transmitted long distances from one culture to another. The basket shape of central European earrings very probably comes from prototypes in Syria and Anatolia. A form relationship can easily be recognized between the earliest European copper earrings and those from the treasures of gold jewelry found by Schliemann at Troy, tentatively dated to *ca.* 2300/2200 B.C. Central European specimens were simply made of a copper wire having one end flattened, wound into a circle.

The greatest numbers of such earrings come from the cemeteries in western Slovakia (fig. 10, *27*, *30*, *31*, *33*; pl. 3, *11*). They were of large and small sizes and some could have been used as bracelets and finger-rings. In the cemeteries of Vyčapy-Opatovce and Abraham they were found in association with pins having large disc heads, hair-rings of various sizes made of copper wire, copper plate diadems, copper dagger blades, necklaces made of boar's tusks, segmented and annular faïence beads, cylindrical bone beads and spacer beads, conical buttons with letter V perforations, illustrated in figure 10 and plate 3. The objects enumerated characterize the early Únětician copper (or "bronze"), bone and boar's tusk industry. Among the pottery forms associated with the above objects are already present the Únětice mugs (pl. 3, *15*, *16*) and jugs (pl. 3, *14*).

From the western Carpathian region earrings and many other copper objects spread northward to Poland, up to the Baltic Sea, and to the western Ukraine.

Large earrings appeared in a hoard discovered in 1854 in Siedlce (Zedlitz) near Lubin in Silesia (Seger, 1926a). Here the earrings (fig. 11, *4*, *5*) were associated with a flanged axe (fig. 11, *2*), conical ornamental plate (fig. 11, *6*), spirals of copper wire or plate (fig. 11, *8-13*), amber beads (fig. 11, *7*), an ornate belt plate of copper (fig. 11, *3*), and a pot (fig. 11, *1*). An analogous assemblage of finds comes also from the hoard of Schönfeld (Butler, 1956, pl. VII).

In the southern Polish cemetery of Mierzanowice, in the district of Opatów, two kinds of earrings, large and small, were found (fig. 251, *15-18*). They were found in graves together with convex ornamental copper plates, disc-shaped bone buttons with several perforations, bone pins, heart-shaped arrowheads of flint, faïence and shell beads, necklaces made of boar's tusks, beads of bone and animal teeth and pots which were usually plain, with corded decoration around the upper part, or with a row of incisions on the shoulder.

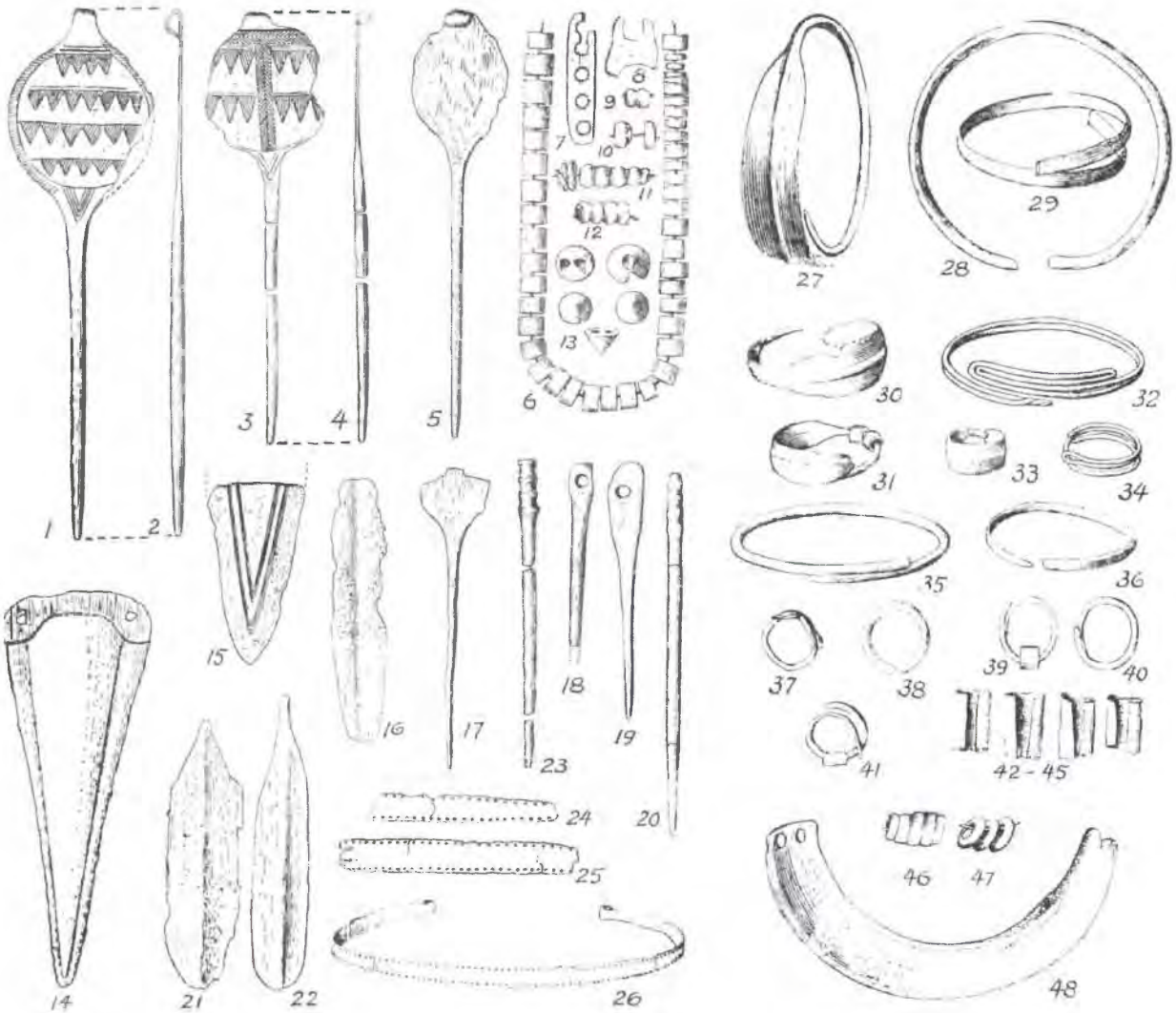


FIG. 10. Grave finds from the cemetery of Vycapy-Opatovce near Nitra, Slovakia. **1-5,** copper pins with disc heads; **6,** bone beads; **7,** spacer bead of bone; **8,** fragment of a bone pendant; **9-12,** faïence beads; **13,** V-perforated conical buttons; **14, 15,** triangular copper dagger blades; **16, 21, 22,** copper dagger blades; **17-20, 23,** bone pins; **24-26,** fragments and a diadem of a copper plate with pointille decoration; **27, 30, 31, 33,** copper earrings; **28, 29, 35, 36,** copper bracelets; **32, 34,** copper "Noppenringe"-spiral bracelet and hair-ring of a double wire; **37-41,** rings; **42-45,** copper plate beads; **46, 47,** copper beads; **48,** part of a necklace made of boar's tusks. Scale approx. 2/3.
By courtesy of the Archaeological Institute in Nitra, Slovakia.

Large earrings were found in graves of the cemetery of Poczapy, east of Lvov, western Ukraine, in association with convex plates and a necklace of copper plate spirals (fig. 305, *7*), in Perediwanie near Horodenka on the upper Dniester in association with hair-rings (Antoniewicz, 1929), and in the cemetery discovered in the city of Kiev (fig. 304, *1, 2*). In the southeast the same type of earrings is reported from Piatra Frecăţei, Dobruja, eastern Rumania. In 1958 a grave was uncovered containing three earrings, an amber bead roughly trapezoidal in shape, two simple finger-rings made of copper plate, and ten convex copper plates (Archaeological Museum of the Archaeological Institute of the Academy of Sciences, Bucharest).

Another hoard containing earrings of western Slovakian type having a considerable chronological value and indicating trade exchange between the south and north Carpathian regions was discovered

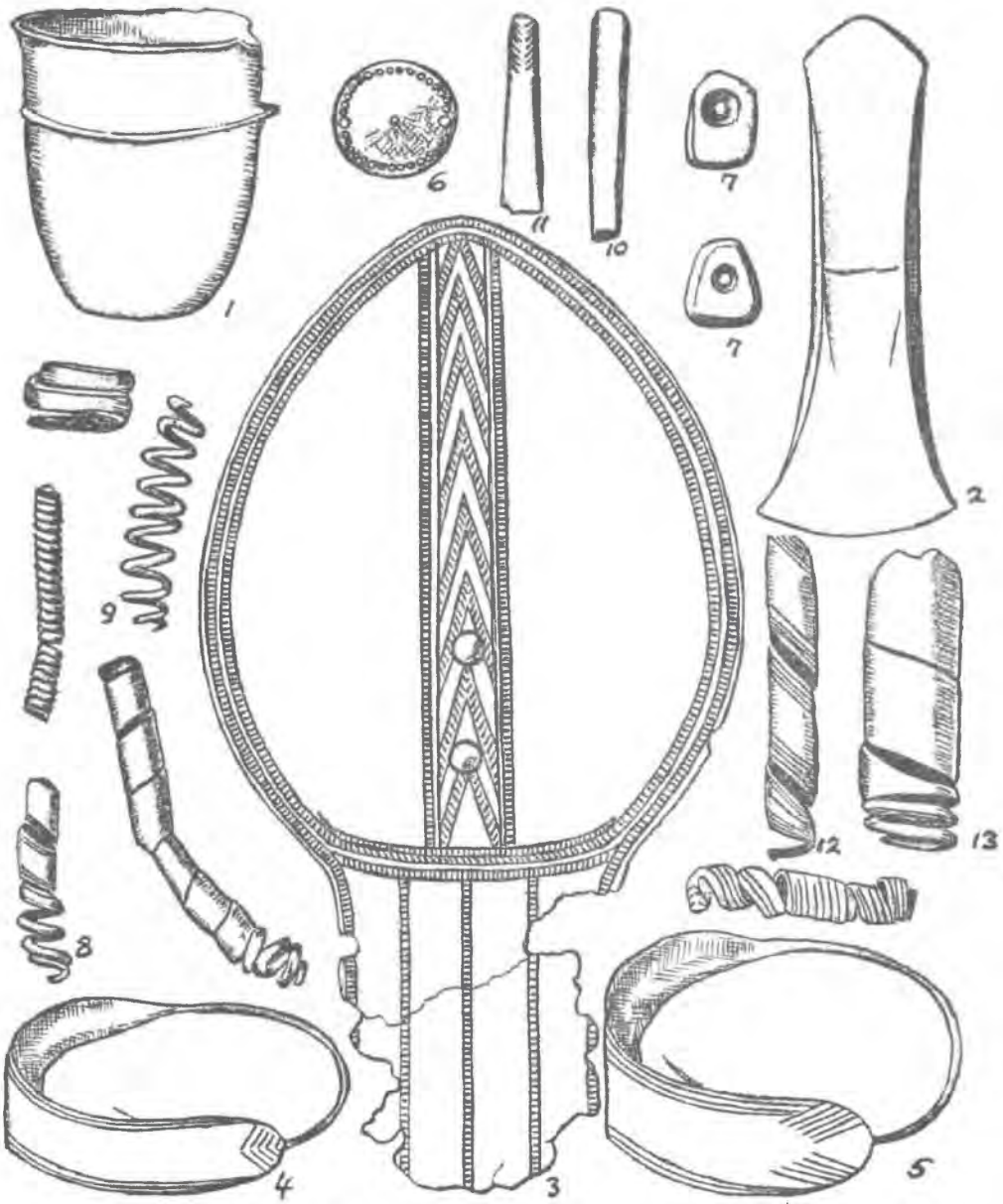


FIG. 11. Hoard from Siedlce (Zedlitz) near Lubin (Lüben), Silesia. **1**, pot; **2**, copper flanged axe; **3**, belt plate of copper; **4, 5**, copper earrings; **6**, convex ornamental copper plate; **7**, amber beads; **8-13**, spirals of copper wire and copper plate. Scale: pot approx. 3/8; belt plate 1/1; the rest approx. 3/4. *After* Seger, 1926 (reproduced from Butler, 1956).

in Stublo, near Mizoch in Volynia (Antoniewicz, 1929). In addition to the large earrings (fig. 12, *11-15*), this hoard contained two shaft-hole axes. One of these had an almost semicircular blade (fig. 12, *1*), the other an even blade and a fairly massive shaft (fig. 12, *2*). The hoard also included an ornament made of a flat triangular copper band ending in spirals (fig. 12, *3*), two neck-rings or diadems made of flat copper bands (fig. 12, *4*, *5*), and bracelets made of round wire (fig. 12, *6-10*). The unusual value of this hoard lies in its conjunction of western Carpathian and Transylvanian forms.

In northeastern Hungary and Transylvania axes with fairly massive sockets and widening blades like the Stublo specimen illustrated in figure 12, *2* are known in great numbers. Some come from hoards and many are isolated (fig. 13, *4*, *5*). Similar axes are found north of the Black Sea, in the early classical Timber-grave culture (cf. the mold for axes of a related type in the barrow of Kievka: fig. 9, *2*), and in the Balanovo period of the Fat'janovo culture in central Russia (fig. 411, *1*). The distribution of similar axe

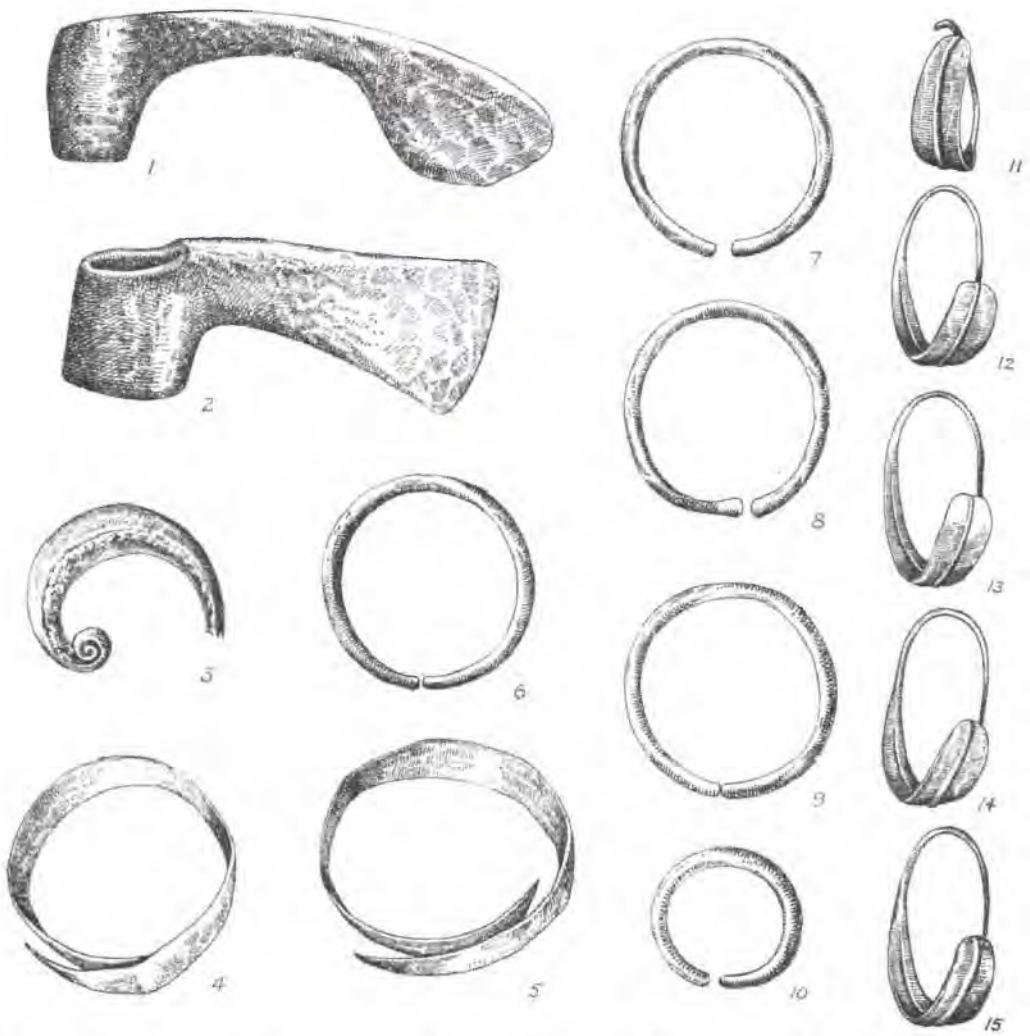


FIG. 12. The Stublo hoard near Mizoch district of Dubno, Volynia. **1, 2,** copper shaft-hole axes; **3,** an ornament with spiral ends; **4, 5,** neck-rings; **6-10,** bracelets; **11-15,** large earrings or bracelets.
Scale approx. 1/3. *After* Antoniewicz, 1929.

forms over a wide area is explainable through their common ultimate origin in the Caucasus: they go back to the Caucasian Early Kuban (Majkop-Tsarskaja) types of the last quarter of the third millennium B.C. To eastern central Europe axes of Early Kuban type must have been brought by the invading Kurgan people. Some specimens are very close to Tsarskaja axes (for instance, axes from Fajsz, south of Budapest: Archeologiai Értesitö, 1898; or from Brno-Lišen, Moravia: Benešová, 1956). Subsequently, in these areas developed an axe clearly derived from Early Kuban prototypes, called Baniabic type (fig. 13, *1*). It is still a short shaft-hole axe with a widening blade. Its relative, a longer axe (fig. 13, *2*) has parallels in the Middle Kuban period (cf. the axe from the hoard of Privol'noe: fig. 329, *1*). Flanged axes were used alongside. Their earlier variants were massive and had very low flanges (fig. 13, *3*). Later specimens were more gracile and had developed flanges (fig. 13, 6-8). Both flanged and shaft-hole axes appear in the same hoards as in the hoard of Debrecen (fig. 13, *5-8*) and in the large hoard of Dunakömlöd, Transylvania (Roska, 1957).

The axe from the hoard of Stublo illustrated in figure 12, *1*, a gracile form with an articulated blade, is an analogue to western Transcaucasian axes dating from the beginning of the second millennium B.C. (cf. an axe from Esheri, Georgia; fig. 328, *A*, *1*).

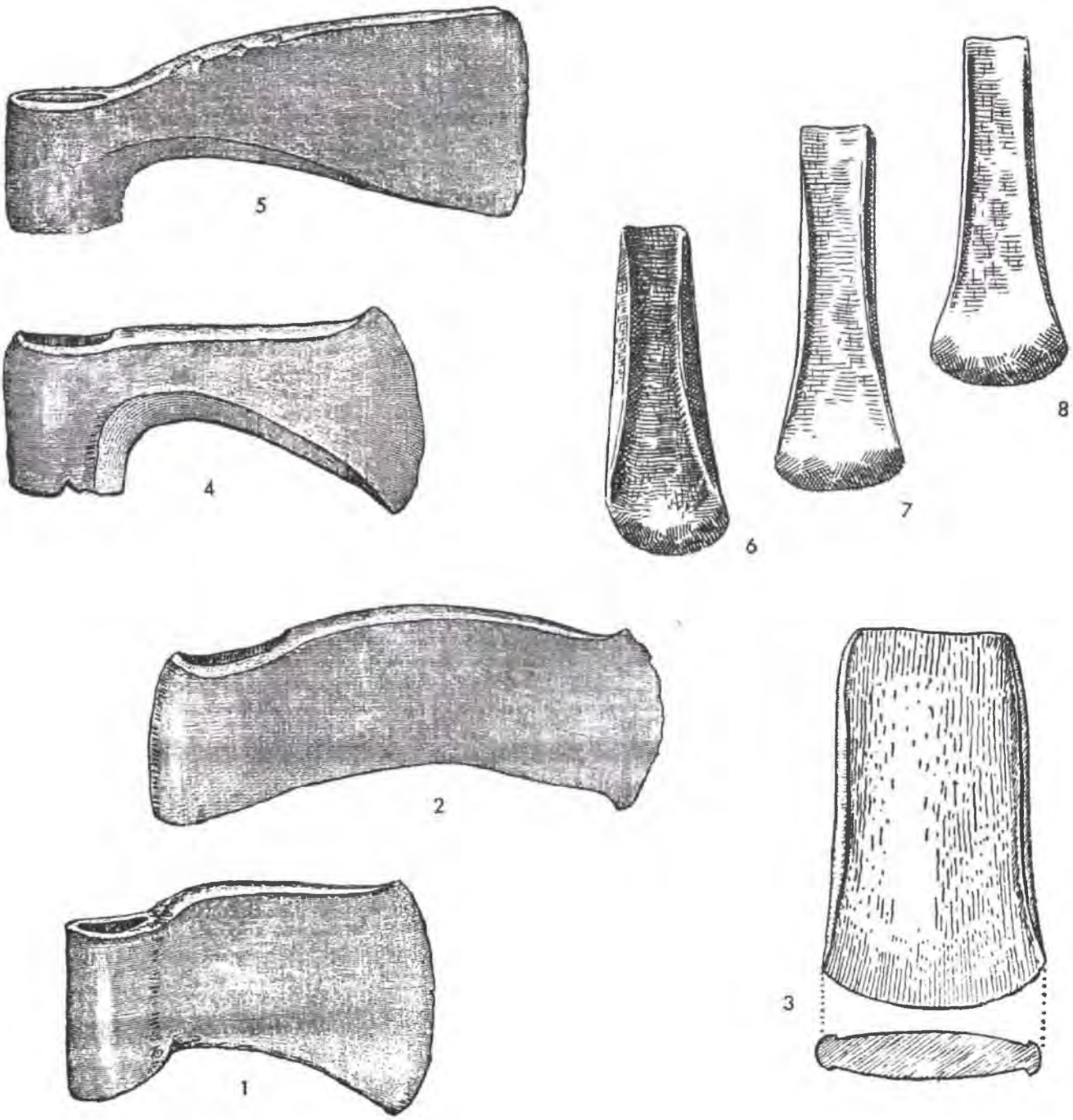


FIG. 13. Shaft-hole axes **(1, 2, 4, 5)** and flanged axes **(3, 6-8)** from eastern Hungary and Transylvania. **1,** Baniabic type, beginning of the second millennium *B.C.*; **2,** parallel form to the above, but with a longer body (isolated find); **3,** early flanged axe (Sf. Georgiu habitation site on the Olt River); **4, 5,** shaft-hole axes with distinct sockets and widening blades, called Darabani type, *ca.* eighteenth century *B.C.*; **6-8,** flanged axes, *ca.* eighteenth century *B.C.* **(5-8,** hoard of Debrecen).
Scale: approx. 1/2. **1, 2, 4,** *after* Pulszky, 1884; **3,** *after* Roska, 1929; **5-8,** *after* Mainzer Zeitschrift, 1929-30.

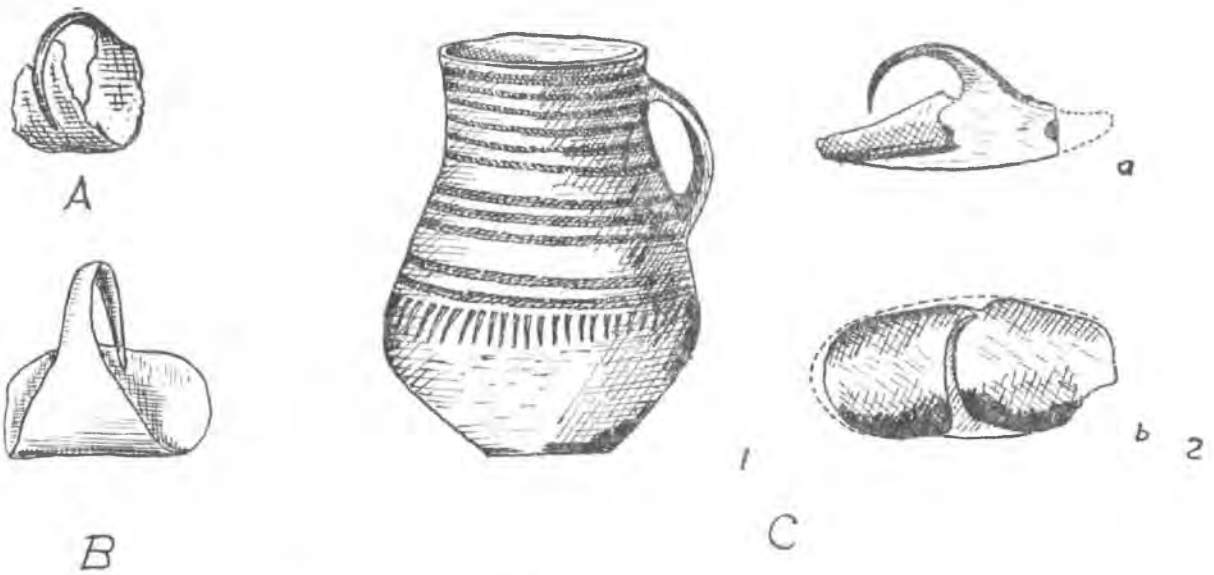


FIG. 14. *A:* gold earring from Gniezno, northwestern Poland. Scale less than 1/1. *After* Knapowska-Mikolajczykowa, 1957. *B:* copper earring from Cowlam, Yorkshire, northern England. *After* J. Evans, 1881. *C:* basket-shaped copper earring (**2**) and corded pot (**1**) from a grave at Sulechow, district of Krakow, southern Poland. Scale: pot approx. 1/6: earring 1/2. *After* Bartys, 1939.

From the above it is seen that for several centuries of the early second millennium B.C. axes of eastern central Europe continued Ponto-Caucasian traits.

Central European dagger forms show more variety regarding their origin. Tanged narrow daggers with a hook, distributed in the lower Tisza and Mureș area (fig. 4, *2*), as was already mentioned, certainly came from the Near East with the stream of many Near Eastern ornament types. Triangular riveted daggers typical of early Unětice (like fig. 10, *14*) also seem to go back to Near Eastern prototypes, but leaf-shaped daggers with narrow tangs, which are found in the early Únětice assemblages (fig. 10, *21*, *22*) are Ponto-Caucasian forms with prototypes in the Catacomb and the Middle Kuban graves (figs. 322, *B*, *6*, *7*; 329, *4*, *5*).

The above illustrated grave and hoard assemblages containing earrings, axes, daggers, and other objects, indicate commercial activities between many tribes living west, south and north of the Carpathian mountains. The spread of copper objects north of the Carpathians seems to have been stimulated by the growing interest in Baltic amber. As was mentioned above, an amber bead in association with earrings was found as far southeast as eastern Rumania and amber beads also appear in the early Únětice hoards and graves. Further commercial ties can be traced by the diffusion of basket-shaped earrings between the western Carpathian region, Poland, and the British Isles, and by gold artifacts near the Baltic Sea coasts.

The smaller earrings terminating in a sharp bent point are known from the early Únětice graves (fig. 10, *31*, *33*) and from the cemeteries of southern Poland (fig. 14, *C*, *2*). In a grave at Sulechów, district of Kraków in southern Poland, the earring was found in association with a late Corded pot (fig. 14, *C*, *1*). Similar earrings, probably derivatives of central European examples, are known from northern England. They were found at Cowlam and Goodmanham, Yorkshire, in barrows contemporary with Beakers (fig. 14, *B*).

In Gniezno, northwestern Poland, a gold earring was found (fig. 14, *A*). The latter can be regarded as one of the earliest witnesses for Únětician trade in gold, along with the gold band in the early Únětice grave at Buchholz in the lower Oder area (fig. 165, *2*), associated with a ring pendant of amber. Such

finds give an idea of the scope of commercial intercourse which connected the metallurgical centers in central Europe, the amber sources in the southeastern Baltic area, and the gold sources of Ireland.

c. *Faïence beads*

Faïence beads are known to the north and east of the Black Sea from the time of the catacomb-graves. Small cylindrical beads of blue paste came to light in the catacomb-graves near Izjum on the Donets (Gorodtsov, 1905, pp. 276, 294), and in the lower Dnieper area annular faïence beads were found in the habitation site of Babino (fig. 332, *6*, *7*), dating from the post-catacomb times.

Faïence beads were found in the graves of the Usatovo group near Odessa, northwest of the Black Sea (Usatovo cemetery: Selinov and Lagodovskaja, 1940, p. 248; Parkany cemetery: Goshkevich, 1903, p. 115; Brăiliţa cemetery near Braila at the confluence of R. Siret and the Danube, eastern Rumania: Dragomir, 1959). White beads were found in graves associated with black-painted and cord-decorated Usatovo vases, copper spiral hair-rings, and beads of wild animal teeth, and with the faïence beads in the Usatovo grave a dark melon-shaped bead came to light. To the Usatovo assemblage also belong copper daggers with rhomboidal tangs having two or four rivet holes. Similar daggers appear in the early Únětice graves and in the graves of the Tomaszów (or Mierzanowice) group in southern Poland, described below.

The graves from the cemeteries on the upper Vistula and of the western Ukraine in the area of the upper Dniester contained round, flat, tubular, and segmented faïence beads of light and dark blue, green, yellow, and sand color. Such beads have been discovered in the Złota cemetery near Opatów, the Mierzanowice cemetery near Miechów, the Sobów cemetery near Tarnobrzeg — all in graves of Tomaszów group, in the Raciborowice cemetery near Hrubieszów of the Strzyżów group — and in one grave of the barrow at Kołpiec near Drohobych on the upper Dniester (Salewicz, 1937; Nosek, 1947, 1948; Kostrzewski, 1948, p. 183; Sulimirski, 1938, p. 286, fig. 422; 1948). In the cemetery of Mierzanowice on the upper Vistula, as mentioned earlier, beads were associated with heart-shaped arrowheads of flint, earrings of copper, corded or plain pottery, bone and flint tools, ornaments of shell, bone, and wild animal tusks and teeth, convex ornamental copper plates and bone buttons having two or three perforations in the center and at the sides and decorated with several rows of eyelets along the edge fig. 251). Forty-three green faïence beads of the same forms as those from Mierzanowice were found in the barrow of Kołpiec and were similarly associated with corded pottery. The segmented beads had from two to eleven segments.

Segmented faïence beads are also known from the Early Bronze Age graves of lower Austria. A light blue segmented bead was discovered in the Leopoldsdorf cemetery, Bruck a.d. Leitha district, lower Austria (Willvonseder, 1937, 20, *8*), in association with gold hair-rings and pottery of early Únětice appearance, showing Bell Beaker influences. From the same cemetery came pieces of pierced amber with roots of animal teeth set into the many eccentric perforations. Ten cemeteries in Moravia have yielded faïence beads, green, blue, and light yellow in color. One of them is the cemetery of Marefy near Bucovice (Tihelka, 1953a, pp. 297, 323, 326). In the cemetery of Holešov, Moravia, annular faïence beads of greenish color were associated, as in Mierzanowice, with cylindrical bone beads, earrings, spirals, and ingots of copper, bone awls and heart-shaped arrowheads of flint, jasper and bone (Struhala, 1951). Segmented, large globular, cylindrical and angular faïence beads in great numbers were found in the earliest phase of the Pecica culture in the lower Tisza area, Hungary. Such are known from the cemeteries of Pitvaros, ÓBeba, Deszk F and Szöreg near Szeged (Móra Ferenc Múzeum in Szeged). The same type of faïence beads (fig. 4, *5*) are known from the graves of the Nagyrév group in the cemetery of Dunapentele, south of Budapest on the Danube (Archaeological Museum in Dunapentele). In the above-mentioned graves faïence beads were found in association with *Dentalium* and *Cardium* shells,

earliest types of knot-headed (Cypriote) copper pins (like fig. 14, *2*), diadems made of copper plates, double-spiral pendants (fig. 4, *6*), neck-rings with small spiral ends of Byblos type (like fig. 4, *1*), gold plates (fig. 123) and hair-rings fig. 4, *4* made of reddish-yellow gold (not of Transylvanian variety), and triangular copper dagger blades. Many of these finds must denote commercial contacts with the eastern Mediterranean area. To about the same period may belong the greenish-blue faïence bead with three segments found associated with copper double-spiral pendants, in Mereşti at Almas, district of Trei Scaune, eastern Rumania (Nestor, 1933, p. 94).

The occurrence of faïence beads in the above-mentioned assemblages shows definitively that faïence was introduced into a large area of central and eastern Europe not later than the nineteenth and eighteenth centuries B.C. A necklace of one faïence bead, a grooved bone bead, and dog's and wolf's teeth was found at Hágios Mámas in Macedonia, dated to the twentieth-nineteenth centuries B.C. (Heurtley, 1939, p. 202, fig. 66). A faïence bead was also found in one of the stone cists at Sesklo (grave 25), Greece, in association with a dagger blade, copper tubes, and a double-handled Minyan pot; this grave should be dated to the Middle Helladic II period, *ca.* 1800-1650 B.C. (Milojčić, 1959, p. 77).

A great many beads belong to a later period also, particularly to 1500-1300 B.C., as will be mentioned below. Distribution maps of sites and descriptions of the faïence beads known from western, central, and eastern Europe, as well as from Greece, Crete, and the Near East are given in the study in 1957 by Stone (fig. 3, *5*). According to Stone, there is no direct evidence of the manufacture of faïence beads in Europe (except for Crete and Mycenaean Greece) during the second millennium B.C. The center of production was in Egypt, where actual factories have been discovered. That Egypt inspired the use and production of faïence beads cannot be disputed. The beads spread over a vast area. There were two possible routes along which faïence beads traveled to central Europe and the Ukraine: first, from the Aegean; alternatively, via the Near East, the Caucasus, and southern Russia. Both routes seem to have been used. In the future more objects will very probably be discovered to prove the farflung trade with the south. We already possess some information of such a situation: between the upper Don and the middle Dnieper small faïence beads were found in the timber-grave of Vorobjovka near Kursk in association with an Egyptian scarab bearing a hieroglyphic inscription (Samokvasov, 1908, p. 19). Unfortunately, the scarab has not been illustrated, but its presence so far north indicates commercial connections with Egypt or at least with the eastern Mediterranean.

3. *Conclusions*

The Near Eastern, Caucasian, and Bell Beaker influences which played a great role in the formation of the European Early Bronze Age serve as a means for chronology.

There is a striking resemblance between ornaments such as neck-rings with spiralled ends, knot-headed or looped pins, basket-shaped earrings and faïence beads, and daggers with hooked tangs, in the lower Tisza and the middle Danube basin and those from the Byblos, Ras Shamra, and Hama levels which date from the period between 2100 and 1750 B.C. The earliest Pecica and Nagyrév levels should be placed therefore in the early centuries of the second millennium B.C. The locally made ornaments in the western Carpathian and probably southern German area based on Near Eastern examples must have been produced in a period succeeding the appearance of the imported Near Eastern artifacts.

Early Únětice find assemblages include objects of Caucasian derivation, such as shaft-hole axes, tanged dagger blades, and ring pendants. They either show persisting Kurgan forms from the end of the third millennium B.C. or indicate continuous cultural contacts between central Europe and the area north and east of the Black Sea. The above mentioned forms have prototypes in the Middle Kuban period of the north Caucasian Early Bronze Age which is *ca.* 2000 B.C. (since it is a post-Majkop and Tsarskaja epoch dated to *ca.* 2200-2100 B.C.). Similar objects were current in the North Pontic Cata-

combgrave culture. Hence, early Únětice and other coeval cultural groups between the Baltic and the Black Seas must succeed the Middle Kuban and Catacomb period.

Early Únětice in central Europe succeeds the late Corded and Bell Beaker period. Since Carbon-14 dates place the Bell Beakers in the twentieth and nineteenth centuries B.C., the early Únětice assemblages must be later and belong mainly to the eighteenth century B.C. The date 1800 B.C. for the beginning of the Únětice culture is used here in the sense of "probably not later than 1800 B.C.".

The wide dispersion of early Únětice products in the middle part of Europe, the dispersion of Caucasian bronzes over the Black Sea area, and the appearance of peculiar ring pendants in almost every cultural group of central and eastern Europe, indicate which cultural groups were contemporaneous. These contemporary cultures in the period of *ca.* 1800 and 1650 B.C. are:

In central Europe (Austria, Czechoslovakia except for its eastern part, southwestern Poland and southern, central, and eastern Germany): early Únětice. Included are Marschwitz (Marszowic) in Silesia, Straubing in Bavaria, the upper Austrian group, Unterwölbling in lower Austria, Wieselburg (Gáta) in lower Austria and northwestern Hungary, and the Nitra group of cemeteries in western Slovakia. This is phase A_1 in Reinecke's scheme for southern Germany.

In the southeastern Baltic area (eastern Pomerania, East Prussia, Lithuania), *eastern Poland and northern Volynia:* Baltic variant of late Corded culture, Tomaszów (or Mierzanowice) group in the upper Vistula area and the Strzyżów group in northern Volynia.

In eastern central Europe (eastern Hungary, eastern Slovakia, and western Rumania): late Nagyrév and a later phase of early Pecica of the Tisza River and the lower Mureş basin.

North of the Carpathians: the late Corded or Bilopotok (Bilyj Potok) period of the North Carpathian culture.

In Moldavia and eastern Transylvania: the proto-Monteoru culture; Monteoru Ic_4-Ic_2 layers of the stratified site of Sărata-Monteoru.

North of the Black Sea: the North Pontic post-Catacomb period, and the Usatovo complex northwest of the Black Sea.

In southern Russia (lower Volga and Don basins): the early classical Timber-grave culture or the Kievka phase.

B. EARLY BRONZE AGE FROM CA. 1650 B.C. – CA. 1450 B.C.

The efflorescence of the central European Únětice culture stimulated by intensive commercial relations with Mycenaean Greece of the Shaft-grave times falls within the limits of this period.

Central and northern Europe, from the British Isles to Lithuania and from the Danube to southern Sweden, were joined by a network of trade routes. In addition to Baltic amber, copper and tin from Bohemia, central Germany and the Carpathians, and gold from Ireland, Bohemia and Transylvania gave a constant impetus to vital economic intercourse.

1. *Amber trade between the Baltic Sea, central Europe, Greece, and the Caucasus*

Amber beads occurred in Greece throughout the whole Mycenaean period (Late Helladic I-III). A series of shaft-graves and tholos tombs dated to the end of the seventeenth to fifteenth centuries B.C. contained amber beads (Wace, 1932, pp. 204-205; K. Müller, 1909, p. 278; Persson and Frodin, 1938, pp. 376, 390; Persson, 1932; 1942 (Dendra); Blegen, 1937b, p. 286).

Flattened-spherical and spacer beads of amber are known from the Mycenaean shaft-graves III, IV, and VI excavated by Schliemann and Stamatakis, usually dated 1580-1510 B.C. (pl. 4) and from one of the shaft-graves from the later discovered circle, Grave Omikron, dated *ca.* 1650-1550 B.C. (Mylonas,

1957). This shows that amber was already being imported into Greece during the second half of the seventeenth century B.C. and the trade has become particularly intensive during the sixteenth century B.C.

The Mycenaean amber beads are of Baltic origin. The amber has a relatively high succinic acid content, from 3 to 8 per cent. This distinguishes Baltic amber, in geological science named "succinate", from that found in Iberia, south Italy, Sicily, Galicia, and Rumania. Moreover, the transcontinental amber routes are indicated by amber beads of similar form in the Baltic area, central Europe, and Greece.

The interest in amber trade increased when the chemists Helm of Danzig in 1885 (Helm, 1885) and Olshausen of Berlin in 1890 (La Baume, 1935, p. 12) published their numerous analyses of amber beads both from the raw material sources and from prehistoric Greek and Italian sites. Helm's analyses of amber beads from Schliemann's Mycenaean shaft-grave excavations showing a 6 per cent succinic acid content, strongly indicated a Baltic source. Beads from the tholos tomb of Kakovatos in Elis, western Peloponnese (pl. 7), when analysed by Jonas in 1908 were found to be of identical substance to the Baltic amber (Jonas, 1908). Later, several other contributions on the composition of amber beads found in East Prussia, central and southern Europe appeared (Viollier and Reutter, 1916; La Baume, 1935). The transcontinental trade in amber was thus discovered in the late nineteenth century; in the twentieth century prehistorians have refined their knowledge of the lines of traffic in the several periods. Recently, microchemical tests for succinic acid were carried out by A. E. Werner of the British Museum on amber beads from the tholos tomb near the palace at Epano Englianos (dated by the excavator Lord Taylour to the fifteenth century B.C. or later) and from a grave at Arvi in Crete of Late Minoan I and II. Epano Englianos beads were "positive" and those from Arvi were "slight positive", showing that amber beads were made of Baltic, probably of East Prussian, raw material (Sandars, 1958-59).

The amber route connecting the amber coasts of western Jutland with Italy was described by Montelius as early as 1910. In 1925, de Navarro published his research on amber routes. These two studies established the importance of Jutland as a source of amber and led to a recognition of the routes over which it was carried south and southeast.

The richest amber sources are, however, in former East Prussia (present Kaliningrad-Königsberg area of the USSR) and Lithuania. The central part of the primeval amber forests are placed near to and above the northwestern point of the peninsula of Samland, latitude 55° and longitude 19° to 20° E. of Greenwich (Berendt, 1866). The west of Samland and the north coast of the dune area of Frische Nehrung supply amber in the greatest abundance. Next in abundance are another dune area, Kuršių Užmaris (Kurische Nehrung), connecting Samland with Klaipėda in Lithuania, and the Baltic Sea coasts of Lithuania and Latvia. Some amber is also obtained around the Bay of Danzig and in Pomerania in present northern Poland. From this southeastern Baltic source area over 90 per cent of the world's best amber is obtained.

Amber was collected for export to the south and north from the end of the third millennium B.C. The existence of an eastern amber route throughout the Early Bronze Age is proven by the concentration of hoards and graves containing amber beads in the lower Vistula area and in western Poland. Finished and semi-finished amber beads show that bead manufacture was carried on where the raw amber was collected. Such beads are known from Juodkrantė, western Lithuania (pl. 5, *1*, *2*, *5*, *6*). The prepared or half-prepared amber was shipped to the lower Vistula and from there went southward via the Vistula, the Notec River or Warta River to the Oder River and the upper Oder. Through Bohemia, Moravia, or Slovakia it reached the Danube and the Tisza rivers, where the route split into two branches, one crossing the Alps into Italy, and the other leading along the eastern coast of the Adriatic to Mycenaean Greece (fig. 15).

The most common form of amber bead in the Mycenaean tombs was a globular or flattened-spherical bead variable in size and centrally perforated. The same type of amber bead occurs in the southeastern Baltic area. Various sizes were found here, the largest known bead being 10.3 cm in diameter (La Baume,



FIG. 15. Amber routes during the period between *ca.* 1600 B.C. and 1100 B.C.

1935, Tafel II). Both in the Baltic area and in Greece, rectangular spacer beads with three to five transverse perforations occur.

In the classical Unětice graves amber beads are associated with loop-headed bronze pins, short triangular dagger blades, arm-rings with narrowing ends, hair-rings ("Noppenringe"), flanged axes, bronze spirals, perforated stone axes, and other objects. In the Unětician graves in Czechoslavakia they appear in great quantity (Pič, 1899, pls. 5-23). Amber beads were used for necklaces, made either of beads alone or separated by intervening bronze spirals. In the graves of Smiardow (Schmirtenau) west of the lower Vistula, in northern Poland, belonging to the Iwno group of the Baltic culture, considerable numbers of flattened-spherical amber beads were discovered with loop-headed pins, a spectacle-like pendant and an axe with small flanges (Holter, 1932; Kostrzewski, 1948, p. 196).

Similar amber beads have also been found in the Terramara and pile-dwelling sites of northern Italy north and south of the Po River in association with classical Unětician bronzes, flanged axes, ring-headed pins and other types (Säflund, 1939, pls. 51, 52; Müller-Karpe, 1959, pl. 88, *13*, *14*, 25, *26*). This speaks for active trade relations between northern Italy and the Unětice cultures.

In the cist-grave or flint dagger period in Denmark, northern Germany, and southern Sweden, amber or bone rings with a long projection for suspension (pl. 6, *2-5*) occur in association with long flint daggers, triangular flint arrowheads with concave bases (pl. 6, *10-14*), bone copies of Unětician loop-headed pins, copper spirals (pl. 6, *6*), armlets (pl. 6, *7*), beakers (pl. 6, *15*) and other finds (Brøndsted, 1938, I, fig. 256).

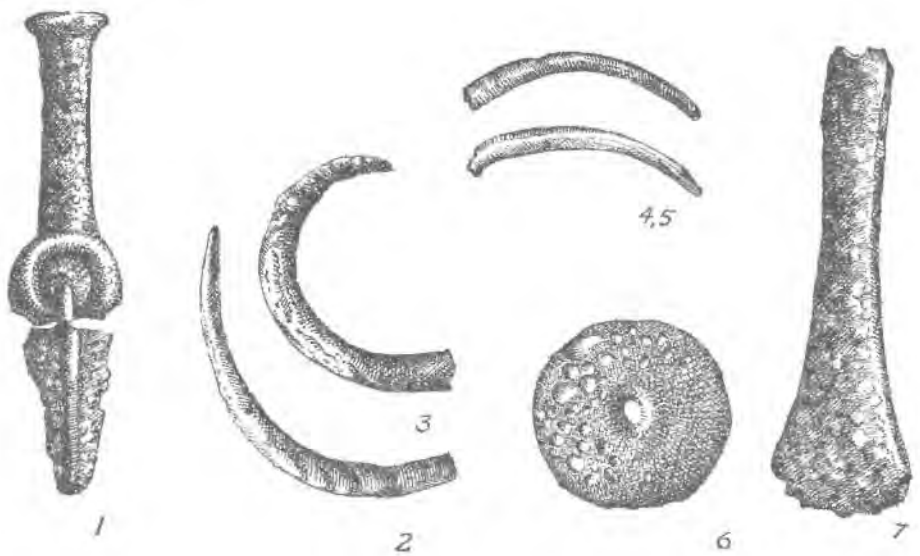


FIG. 16. Grave inventory from the barrow at Brusy near the mouth of the Vistula. **1**, dagger; **2-5**, fragments of neck-rings and bracelets; **6**, amber bead; **7**, flat axe. Scale approx.: **1**, **7**, 1/2; **2-6**, 2/3. *After* Šturms, 1936.

Many of these amber pendants have come to light in Juodkrantė, western Lithuania (pl. 5, *12-15*). Their general origin very probably lies in the preceding period when circular or elongated pendants with a small perforation for suspension were spread over a large area between the Black Sea and the Baltic Sea (cf. pls. 1, *1*; 6, *1*).

A fairly large number of spherical, barrel-shaped, and annular amber beads appeared in the cemeteries near Szeged (Szöreg, Ószentiván, Deszk A and Deszk F), eastern Hungary, near the confluence of the Tisza and Mureș rivers. Amber beads were discovered in the graves which belong to the early Pecica culture (Banner, 1931; Foltiny, 1941a, pl. XIX; Foltiny, 1942b, pl. X). In addition to spherical and annular beads found in the graves of the Szöreg cemetery, there was discovered one four-rayed star-bead of amber similar in form to the faïence beads of the same grave (Foltiny, 1941a, pl. XIX, *42*).

In the advanced classical Únětice assemblages, typified by bronze-hilted daggers, halberds, long and narrow double-axes, and massive C-shaped bracelets, amber beads are no less frequent, with the richest hoards concentrated in the area of the lower Vistula and the Oder basin.

Not far from the mouth of the Vistula, in the barrow at Brusy near Chojnice, flattened-spherical amber beads (fig. 16, *6*) appeared in association with a bronze-hilted dagger (the so-called "Malchin" type, fig. 16, *1*), several fragments of neck-rings and bracelets (fig. 16, *2-5*), and a flat axe of bronze (fig. 16, *7*). The richest hoards were found to the west of the lower Vistula in northern Poland: the Wąsosz hoard, in the district of Szubin, in addition to amber beads (fig. 17, *4-16*), contained a gold basket-shaped earring (fig. 17, *1*), five gold neck-rings 5.5 cm to 6 cm in diameter (fig. 17, *17-19*), a chisel of bronze, a necklet, five massive C-shaped rings, four small oval bracelets of bronze (fig. 17, *23-25*), one thick massive spiral ring (fig. 17, *22*) and four smaller spiral rings, four spirals of bronze banding, 26 spiral rolls of wire (fig. 17, *2*, *3*), and two round plates of bronze, 5.3 cm in diameter with a perforation in the center. Basket-shaped earrings of gold are known from England (fig. 18). The hoard of Wojcieszyn, Szubin district, contained several amber beads, two narrow double axes, a short dagger with a flat, broad blade, 19 massive C-shaped rings, four spiral bracelets, and four spiral finger-rings – all of bronze (Montelius, 1898, p. 477). The above finds are typical of classical Únětice.

In the tholos tomb of Kakovatos in Elis in western Poloponnese, flattened-spherical amber beads (pl. 7, *10*, *11*, *16*, *17*, *25*) occurred in association with spacer beads with complicated perforations (pl. 7, *23*, *24*) and ring pendants ("quoits") with a projection for suspension (pl. 7, *22*). In Furumark's

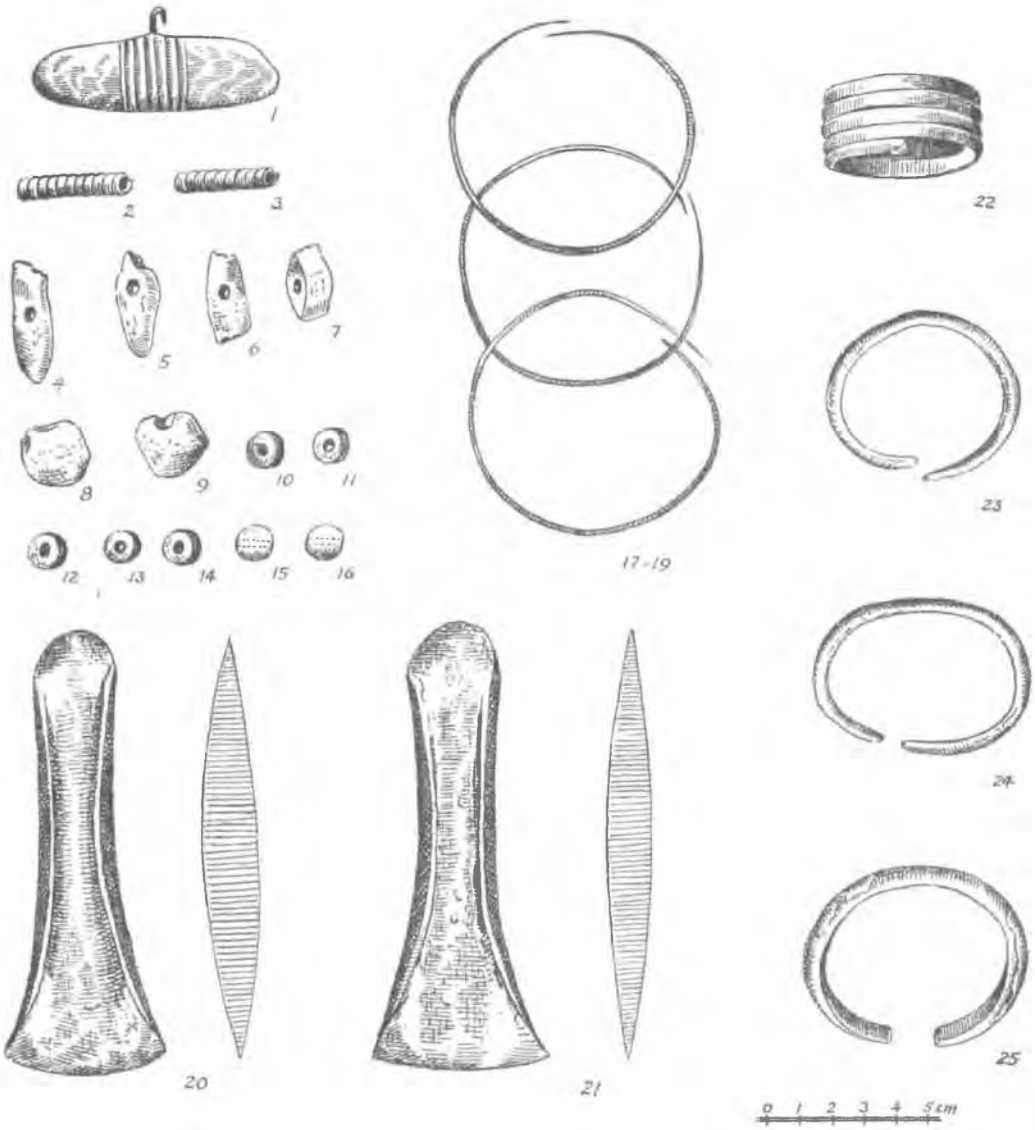


FIG. 17. Finds from the hoard of Wąsosz, district of Szubin, western Poland. **1,** basket-shaped earring; **2, 3,** spirals; **4-16,** amber beads; **17-19,** neck-rings; **20, 21,** flanged axes; **22,** spiral ring; **23-25,** bracelets. **1, 17-19,** gold; **2, 3, 20-25,** bronze. *After* Knapowska-Mikołajczykowa, 1957.

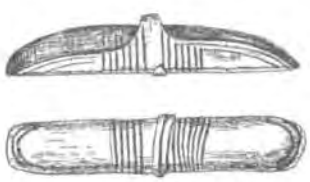


FIG. 18. Basket-shaped earring of gold from Radley, Berkshire, England. Scale 1/2. *After* The Guide to the Ashmolean Museum, 1951.

scheme (1941, pp. 47, 98, 110), the tomb of Kakovatos belongs to Mycenaean II A, which parallels the reign of Thothmes III in Egypt, that is, 1500 to 1450 B.C. The Kakovatos spacer beads with complicated perforations are conclusive evidence for commercial contacts between the Wessex culture in England and Mycenaean II A in Greece (Piggott, 1938; Milojčić, 1955; Hachmann, 1957a). Spacer beads with complicated perforations from the southwestern German Tumulus culture belong to the assemblage of Phase B and continue to Phase C which succeeds Mycenaean II A, as was shown in a recent study by Hachmann (Hachmann, 1957a, p. 22, figs. 6-11). Hence, the spacer beads with complicated perforations from southwestern Germany are not entirely contemporaneous with the specimens of Mycenaean II A as was previously supposed (Merhart, 1940; Childe, 1948a). Mycenaean II A equates in southwestern Germany with A_2 in Reinecke's scheme, which is late Únětice, characterized by pins with globular heads with a diagonal perforation (Hachmann, 1957b, pp. 165 ff.). Spacer beads in central Europe had a rather long life and persisted throughout the fourteenth century B.C. The Kakovatos ring pendants with projections for suspension have close analogues in the Wessex Early Bronze Age in England, where they were made of shale (Piggott, 1938, pl. 84), and in the flint dagger period of Denmark (pl. 6, *2*).

Spherical, barrel-, and ring-shaped amber beads appear in the late Únětice assemblage, the Věteřov group of Moravia, and in the Mad'arovce group of western Slovakia. Characteristic late Únětice bronzes include pins with perforated globular heads and twisted stems (fig. 178, *1-3*; fig. 179, *9, 10*), shaft-hole axes with a vertical and ribbed shaft-tube (pl. 11, *2, 3*), and axes with flanges forming a V (fig. 179, *6, 7*). Spherical amber beads in the Majcichov, Abraham, Matuškovo, and other cemeteries of the Mad'arovce group in western Slovakia (fig. 178, *13-16*) were discovered in association with pins with perforated globular heads and pins having rhomboid heads with folded corners (fig. 178, *4-6*). To the same period belong amber beads found in the cemeteries of the classical Otomani culture (Füzesabony phase) in eastern Hungary (cf. amber beads from the cemetery of Hernádkak: Tompa, 1937, pl. 46, *13, 14*) and in the cemeteries of the Vattina group in northern Yugoslavia and southwestern Rumania.

East of the Vistula River amber beads do not appear in the same quantities as in central Europe and Greece. In Moldavia round amber beads of various sizes are known from the Monteoru cemeteries Nos. 1, 2, and 4. Cemetery No. 2 belongs to phase Ia of the stratified habitation site in Monteoru which is contemporary with late Únětice (Věteřov, Mad'arovce) and the Füzesabony phase of the Otomani culture. The Monteoru cemetery No. 4 is slightly later and cemetery No. 1 belongs to the phase IIb of Monteoru (finds in the museum of the Archaeological Institute in Bucharest; excavations by I. Nestor and E. Zaharia). Along the middle Dnieper, amber beads are reported from the Sofiivka cemetery near Borispil in the district of Kiev. The cemetery consisted of 141 cremation graves yielding metal objects of advanced Early Bronze Age appearance – elongated rhomboid knife blades of copper, flat copper axes, spiral earrings with overlapping ends, bracelets made of a thick copper band with overlapping ends, tubular beads made of copper plate; triangular flint arrowheads with even or concave bases; flint celts, perforated stone axes, and pottery. In the cemetery area tubular beads "of turquoise and of marble-like limestone" were found, as well as biconical, spherical, and ribbed beads of faïence and amber (Zakharuk, 1952). Turquoise is not native to the Caucasus; the nearest known source lies in Nišapur, Iran.

2. *Faïence beads in central and eastern Europe*

The faience trade continued on lines similar to those of the preceding period. Annular and segmented beads are reported from the classical Únětician graves, and were found in association with classical types of Únětice pottery and bronzes in the following sites in Moravia: Jiřikovice, Nemčice, Kyjov, and Horni Dunajovice (Tihelka, 1953a).

Small annular, segmented, cylindrical, or star-shaped faïence beads of blue or green color are quite frequent in late Únětice graves (cf. Horní Přín graves in eastern Bohemia: Moucha, 1958), in the Mad'-

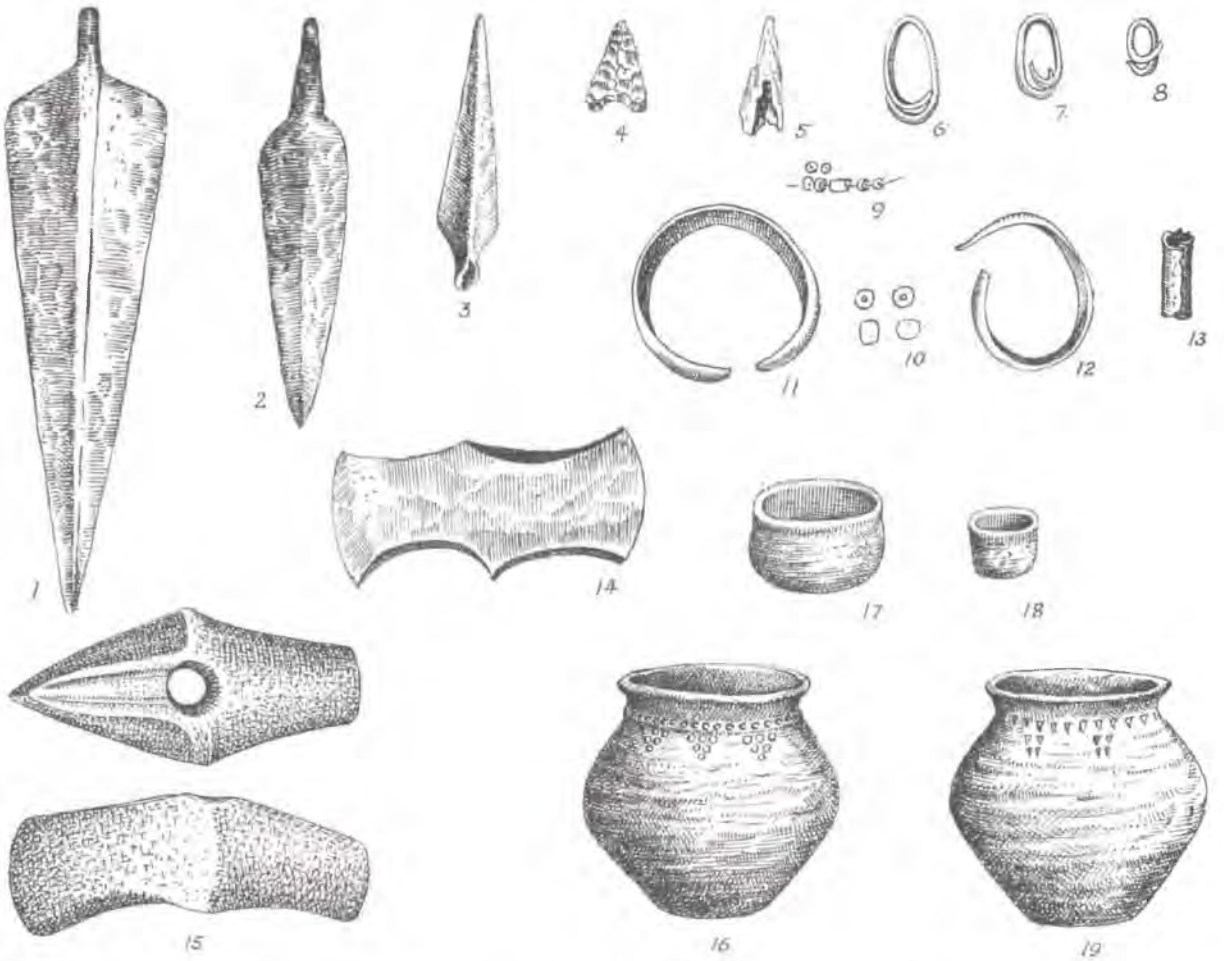


FIG. 19. Grave finds from the cemetery of Pervomajskoe, district of Groznyj, northeastern Caucasus. **1, 2,** copper daggers; **3,** copper spearhead; **4, 5,** flint and bone arrowheads; **6-8,** copper hair-rings; **9,** annular faïence beads of white and gray color; **10,** copper beads; **11, 12,** bracelets of flat copper wire; **13,** bead of folded copper wire; **14,** copper axe; **15,** stone axe of diorite; **16-19,** pots. Scale approx. 1/3. *After* Krupnov, 1950.

arovce group of western Slovakia (cf. Majcichov cemetery: Archaeological Museum in Nitra), in the Monteoru group of eastern Rumania (Monteoru cemeteries No. 2 and 4, which belong to the Monteoru Ia and the succeeding phase), and in the Füzesabony group of the classical Otomani culture in northern Hungary (cf. pl. 31, *22*). They are also found in the late Wessex culture of England, in the western and eastern Mediterranean area, in Greece, Anatolia, Syria, and Iran.

Annular or cylindrical faïence beads, mostly of white, light blue, green, or yellow color, are present in the central Caucasus during the Faskau phase (fig. 337, *3*). Tiny beads of white and gray paste (fig. 19, *9*) and of carnelian are known from the Pervomajskoe cemetery near Groznyj in the eastern Caucasus, where they were associated with copper daggers (fig. 19, *1, 2*), spiral ornaments, bracelets (fig. 19, *11, 12*), copper beads (fig. 19, *10*), spearheads (fig. 19, *3*) and copper shaft-hole axes (fig. 19, *14*), perforated stone axes of diorite (fig. 19, *15*), flint and bone arrowheads (fig. 19, *4, 5*), and pottery (fig. 19, *16-19*). The Pervomajskoe copper artifacts show a close relationship with the axes and daggers from the southern Caspian area of northwestern Iran (fig. 20). In the Persian Talysh, this type of dagger (fig. 20, *5, 6*) and axe (fig. 20, *1*) appears in association with faïence beads (fig. 20, *7*), as at the site of Khodja-Daoud-Keupru dated by Schaeffer to Late Talysh I, *ca.* 1500-1450 B.C. (Schaeffer, 1948, p. 418, pl. LIX). The date has been arrived at by typological reconstruction; according to Schaeffer, the finds of Khodja-Daoud-Keupru

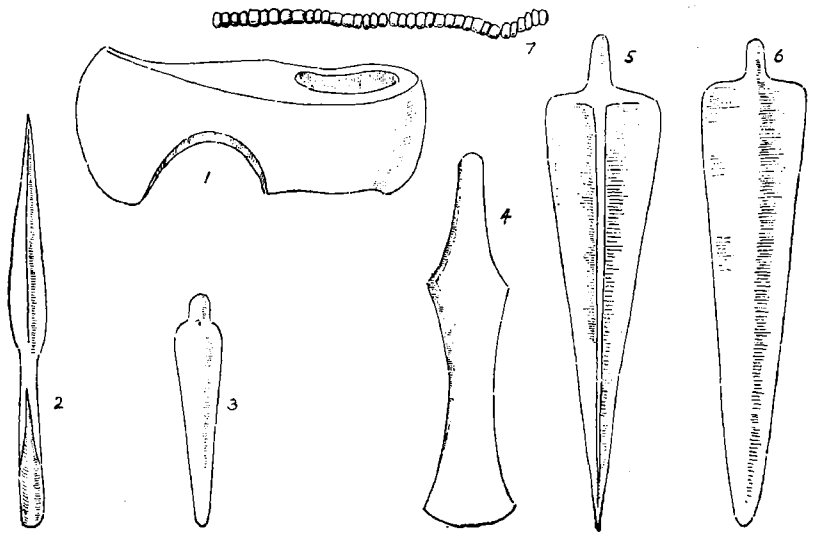


FIG. 20. Copper artifacts and faïence beads of Late Talysh I type from the site of Khodja-Daoud-Keupru, northern Iran. **1**, copper axe; **2**, spearhead; **3**, knife; **4**, adze; **5**, **6**, daggers; **7**, faïence beads. Scale approx. 1/4. *After* Schaeffer, 1948.

are earlier than those from Agha-Evlar, a site dating from the "cylinder period" which extends both before and after the year 1400 B.C.

Studies by Beck and Stone (1936) have shown that the segmented beads from the Wessex culture in England have nearest analogies in the Abydos cemetery (grave 1808A), Egypt, and at Lachish (Tel ed-Duweir) in Palestine, both of which can be accurately dated about 1400 B.C. Their appearance in Únětician graves does not, however, give a dating around 1400 B.C. because segmented and annular beads were already present in the classical and in the late Únětice graves which belong to a period from the seventeenth to the mid-fifteenth centuries B.C. They are also found in association with classical types of Únětice pottery and bronzes, and with late Únětice bronzes such as pins with perforated globular and conical heads. Annular and four-rayed faïence beads are present in the Mad'arovce group in western Slovakia. In the cemeteries of Majcichov and Matuškovo they were found in association with spherical amber beads (fig. 178, *13-16*), pins with globular and conical heads usually having twisted and bent stems (fig. 178, *1-3*), pins with rhomboidal heads having folded corners ("Hülsennadeln"; fig. 178, *4-6*), bracelets round in cross-section with tapered ends (fig. 178, *10*), round and conical bronze plates, mugs, and other types of pots. This kind of assemblage is indubitably later than classical Únětice with ear-headed and ring-headed pins, but not as late as 1400 B.C., as the connections with the Mycenaean I and II culture indicate.

Faïence beads of the later period were of more varied forms, and some were of brighter color than those found in the earlier Únětice graves. Beads of a cobalt blue color were found in Ostrožka Nová Ves, Moravia, from the late Únětice graves. These beads were spectrographically examined; according to Stone and Thomas, the same coloring matter was used by the Egyptians during the Eighteenth Dynasty (Stone and Thomas, 1957, p. 58). However, in the light of recent investigations by Neuninger and Pittioni of glass beads from the early Urnfield period in Austria, changes in our concepts regarding the production center of faïence can be expected. The examination of blue glass beads from the early Urnfield cemetery at Volders in the Tyrol has proved the existence of a local production center in the northern Tyrol near Schwaz. The natron-potash lime glass was colored by the addition of copper which originated in the vicinity of Volders. Beads from the lower Austrian cemeteries which have been examin-

ed have shown identical composition. Some Middle Bronze Age beads discovered in Tumulus graves and hoards have not yet been examined, but the analysis of one globular bead from Melk-Spielberg, presumed to belong to the late Únětician Unterwölbling group in lower Austria, has shown that it was colored by the aid of pure copper which may have come from western Carpathian or Transylvanian sources, and that it was free of boron as were the early Urnfield beads (Neuninger-Pittioni, 1959).

3. *Gold trade*

Gold objects are concentrated in the area of the Únětice, Otomani, Wietenberg (in Transylvania), and Tei (lower Danube) cultures. The Únětice people imported gold from Ireland, as is shown by a basket-shaped earring of British type found in the hoard of Wąsosz, western Poland (fig. 17, *1*), and probably also obtained it from the local sources in Bohemia. The gold basket earring from Wąsosz has its closest parallels in the British Isles: Radley, Berkshire (fig. 18) and Orton, Morayshire (reproduced by Butler, 1956, p. 63, fig. 14) and in Ireland ("Dacomet", Co. Down: Armstrong, 1933, No. 350, p. XVIII, *413*). From all the classical Únětician hoards comes only the single example from Wąsosz, located on the amber route. Another gold basket-shaped earring in bad condition from the North Carpathian culture was discovered in the barrow at Rusilov. It was found together with a stone axe, a flint dagger, and other flint artifacts in the same grave (fig. 306). The greater number of long basket-shaped earrings in the British Isles indicates their probable importation into central Europe from the west. Between Ireland and the lower Vistula, in Belgium, gold basket-shaped earrings have also been found (the cave "Trou del Heuve", Sinsin, Prov. Namur: Marien, 1952, p. 186, fig. 173). The gold spiral hair-rings or earrings made of a massive gold wire with thickening ends (fig. 170, *4*, *5*) very probably are of local Bohemian gold.

The Otomani and other cultures in eastern central Europe obtained gold chiefly from the Transylvanian sources. In eastern Slovakia, Hungary, and Rumania gold objects have been found in great numbers. Hair-rings or earrings made of gold wire with thickening and overlapping ends, have a wide distribution. The fact that in distant areas they appear in a similar or identical form shows their importance in trade. This type of hair-ring is known from Hungary (pl. 31, *17-21*, *23*; Tompa, 1937, pl. 46, *11*, *12*), Rumania (fig. 21, *22-28*), the western Ukraine (pl. 9, *5*), and the Caucasus (fig. 19, *6-8*; fig. 337, *6*; the hair-ring in the latter illustration is of copper, but in the same cemetery gold specimens were found: Uvarova, 1900, pl. 89, *14*, *16*).

To the beginning of the series of outstanding gold treasures of eastern central Europe belong several finds from the lower Danube area. These are the grave finds from Măcin in Dobruja and Perşinari northwest of Bucharest. Both comprise forms which show a certain stylistic relationship, on the one hand with the classical Únětice forms, and on the other with the Mycenaean shaft-grave forms. The accidentally discovered gold treasure in the tumulus at the village of Măcin north of Silistra, Dobruja, comprised two halberd blades and two bracelets, round in cross-section (pl. 8, *1*, *2*, an illustration of *1*, one halberd blade and *2*, one bracelet). The halberd blades were quite long, one was 22.2 cm, the other 19 cm in length, had a rib in the middle of the blade which was slightly curved, and had projections at the hilt. The blades were made of 53 percent gold, 23 percent silver, 22-23 percent copper and 1-2 percent iron (Severeanu, 1935). As Severeanu has already noticed, the Măcin halberd blades are reminiscent of the western Mediterranean halberd blades and also of the dagger form known from the Mycenaean shaft-graves like that from Shaft-grave IV (Severeanu, 1935, p. 9). The bracelet is similar to the gold or bronze bracelets known from many classical Únětice graves and hoards (cf. the gold bracelet from the royal tomb in the barrow of Helmsdorf; fig. 170C, *6*). The Perşinari treasure found in 1956 near Târgovişte consists of a massive gold dagger or sword, over 30 cm long (its hilt and end of the blade are broken) and 9 cm wide at the shoulders (pl. 8, *3*), and of four silver battle-axes all in fragments (Museum of the

Archaeological Institute of the Academy of Sciences in Bucharest). The blade had four grooved channels starting on each shoulder and running parallel down the blade, while the broken hilt had a projecting hand guard, with an omega-shaped base. The Perşinari sword-dagger is, so far, unique in Europe. Although some stylistic resemblance to the Mycenaean I swords can be seen, it was probably locally produced by the Tei people north of the lower Danube. Among the Mycenaean swords and daggers there is a long sword having a golden hilt from grave Delta of the grave circle B at Mycenae (Mylonas, 1955, pp. 140, 141). Its hilt was decorated with spirals and the hand guard ended in heads of lions (pl. 8, *4*). The shape of the hand guard in spite of its decorative motifs shows a stylistic relationship to that of the Perşinari sword. Both have pointed shoulders and an omega-shaped base, and such similarities very probably are not accidental. The grave circle *B* of Mycenae dates from a somewhat earlier period than circle *A* (*ca.* 1580-1510 B.C.), hence the stylistic resemblance between the sword of Mycenae from grave Delta and the sword of Perşinari would indicate for the latter a date somewhere around 1600 B.C. The silver axes are of the so-called Tufa type copper axes known from the hoard of Tufa southwest of Bucharest (pl. 8, *A*, *1*). These battle or cult axes with a shaft-hole in the middle, a cylindrical butt and a slightly curved blade are usually made of semi-precious stone (like that from the hoard of Borodino, pl. 12, *4*) or copper. They represent an axe type known around the Black Sea and in the Caucasus lasting for a considerably long period. In addition to such an axe, the hoard of Tufa included an axe of Transylvanian-Carpathian type with a straight body and a shaft-hole at the butt (pl. 8, *A*, *2*) and two lunula-shaped, faceted earrings of gold with thinning ends (pl. 8 *A*, *3*, *4*). The above-mentioned typological comparisons speak for a chronological parallelism between the Mâcin, Perşinari, and Tufa treasures, classical Únětice and early Mycenaean (late Middle Helladic), graves. The gold forms of these three sites do not appear in the series of later gold hoards which belong to the classical Otomani (Füzesabony and Wietenberg groups) dated in the period *ca.* 1550-1450 B.C., as will be shown below. The most probable date for Măcin, Perşinari, and Tufa is from 1650/1600 to *ca.* 1550 B.C.

For the illustration of trade activities between Transylvania, the northern Pontic area and the Caucasus, the interesting hoard found on the Southern Bug River, northwest of the Black Sea, deserves our attention. The hoard was deposited in the Museum of Nikopol', western Ukraine (Tallgren, 1931a): hence its name, the "Nikopol' hoard". It contained gold hair-rings (pl. 9, *5*), two basket-shaped ornaments of copper or bronze, decorated with imitation cord motif in relief (pl. 9, *3*, *4*), an awl (pl. 9, *2*), a Caucasian copper axe of Faskau type (pl. 9, *1*), and a triangular dagger blade (not reproduced here).

That Transylvania was in the center of trade in gold and that its sources played the most important role over all eastern central Europe and in the western Pontic area is indicated by large gold treasures like those from Şmig in eastern Rumania (fig. 147), Ostrovul Mare in southern central Rumania (pl. 32), Pecica-Rovine in western Rumania (Popescu, 1944, pp. 130-132, fig. 57), and Ţufalău (Cófalva) in the district of Trei-Scaune, eastern Transylvania (Mozsolics, 1949a). The treasure of Ţufalău contained golden shaft-hole axes of Transylvanian type (fig. 21, *1-4*), convex discs with punctured decoration (fig. 21, *12*, *20*), discs with spiral decoration (fig. 21, *8-11*), a fragment of a plate with spiral ornaments (fig. 21, *5*), hair-rings with thickening and overlapping ends (fig. 21, *21-28*), some of them coiled in small spirals, a twisted neck-ring with spiral ends (fig. 21, *6*), a broken sphere, and an ingot. The Ţufalău and Şmig hoards are presumed to belong to the Wietenberg cultural group of eastern Transylvania (verbal information from Prof. D. Berciu). The treasure of Ostrovul Mare with convex plates, hair-rings, and bracelets, found in a pot of Vattina-Gîrla Mare type, probably was imported from Transylvania.

The above-mentioned and many other gold hoards from Rumania, Hungary, and northern Yugoslavia almost all belong to the same period: the end of the Early Bronze Age. This is seen from the identical form of hair-rings and the spiral ornaments on plates. The form of Ţufalău axes has parallels in the cemetery of Megyaszó (pl. 31, *1*) in northern Hungary; both belong to the classical Otomani culture parallel to late Únětice. The approximate date: first half of the fifteenth century B.C.

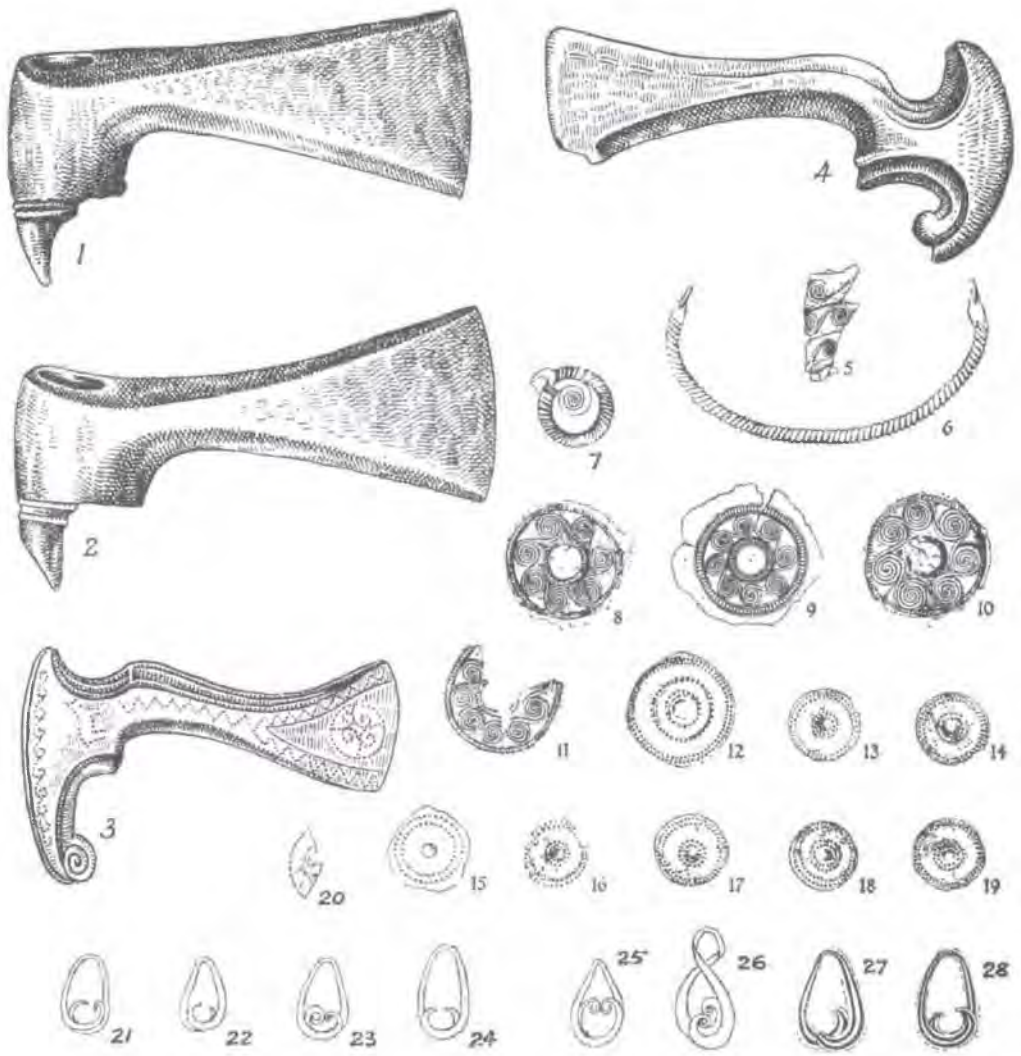


FIG. 21. Gold treasure from Ţufalău (Cófalva), district of Trei Scaune, eastern Transylvania. **1-4,** axes; **5, 8-20,** ornamental plates; **6,** neck-ring; **7,** finger-ring; and **21-28,** hair-rings. Scale: **1-4** approx. 1/3; **7-28** less than 1/1.
After Mozsolics, 1949, and Hachmann, 1957.

4. *Mycenaean-Minoan influences on central Europe*

Through commercial relations with Mycenaean Greece, the Unëticians and Otomanians gradually became more acquainted with the Mycenaean-Minoan culture. In central Europe are found objects that can be explained only as imitations of Mycenaean artifacts or art motifs.

In the Unëtician cemetery of Nienhagen near Oschersleben, Saxony, a pottery cup with a handle made of two horizontal lugs joined by a vertical cylinder was brought to light (fig. 22, *1*). Such a handle is certainly not an independent invention of an Unëtician potter, but an imitation of handles frequent on gold goblets or cups in the Mycenaean Shaft-graves IV and V of Late Helladic I (fig. 22, *3*) or on Late Minoan Vapheio cups (fig. 22, *2*). In the Aegaen area such cups were made not only of gold but also of bronze or pottery, and the pottery cup from the Shaft-grave V (National Museum in Athens) is quite similar to that from Nienhagen. The same type of cup is known from Egypt (cf. grave of Queen Hatshepsut, 1520-1484 B.C.). In Crete as well as in Egypt the tradition of Vapheio cups is long; they are



FIG. 22. **1,** pottery cup from the cemetery of Nienhagen near Oschersleben, Saxony; **2,** Late Minoan Vapheio cup; and **3,** a gold goblet from the Shaft-grave No. IV at Mycenae. Scale approx. 1/2.
After Mötefindt, 1912 (**1**); Seger, 1924 (**2**); and Schliemann, 1878 (**3**).

known from the beginning of the second millennium B.C. In the hoard of Tod in Upper Egypt, which is generally accepted as dating from the time of Amenemhet II in the second half of the twentieth century, silver mugs with handles of Vapheio type were present (Vandier, 1937, p. 174). The similarity between the Unětician cup from Nienhagen and the Mycenaean-Minoan cups of Vapheio type was noticed fifty years ago (Mötefindt, 1912). Unfortunately, among the finds from the cemetery of Nienhagen there were no bronzes of diagnostic value, but the pottery was of advanced Unětice type (Voges, 1908; Mötefindt, 1911).

Another find pointing to a tie between the Aegean world and central Europe is the helmet discovered at Beitzsch near Gubin (Guben) in the middle Oder area (fig. 23, *2*). In Beitzsch were also found a dagger blade of a type commonly used by the Úneticians in the Oder-Elbe area (fig. 23, *1*) and two neck-rings. The dagger blade shows close relationship to the daggers of the classical Unětice which are known from the hoards of Lubin (Lüben), in Silesia, Wojcieszyn, and Granowo, in northwestern Poland (fig. 24; pl. 42). The Beitzsch finds discovered in the first half of the nineteenth century were first published in 1847 and described by Hencken in 1952.

The Beitzsch helmet is similar to the recently discovered Late Minoan II helmet from Knossos, Crete. The detailed examination of the Beitzsch and Knossos helmets (Hencken, 1952, with reference to Sinclair Hood) shows their similarity, except that the workmanship of the Beitzsch example seems more crude than one expects to see in Minoan objects: the knob was not riveted on, as on the Knossos example, it was less regular in form, and the three sets of holes, designed to hold a cheek and neck guard, were less regularly placed than those of the helmet from Knossos. If the Beitzsch helmet did belong to the same hoard together with classical Unětice daggers, it may be considerably earlier than the Knossos helmet. Both seem to be bronze analogues of the Mycenaean boar tusk helmet which originated in Middle Helladic times and which appears in the shaft-graves of Mycenae in the sixteenth century B.C.

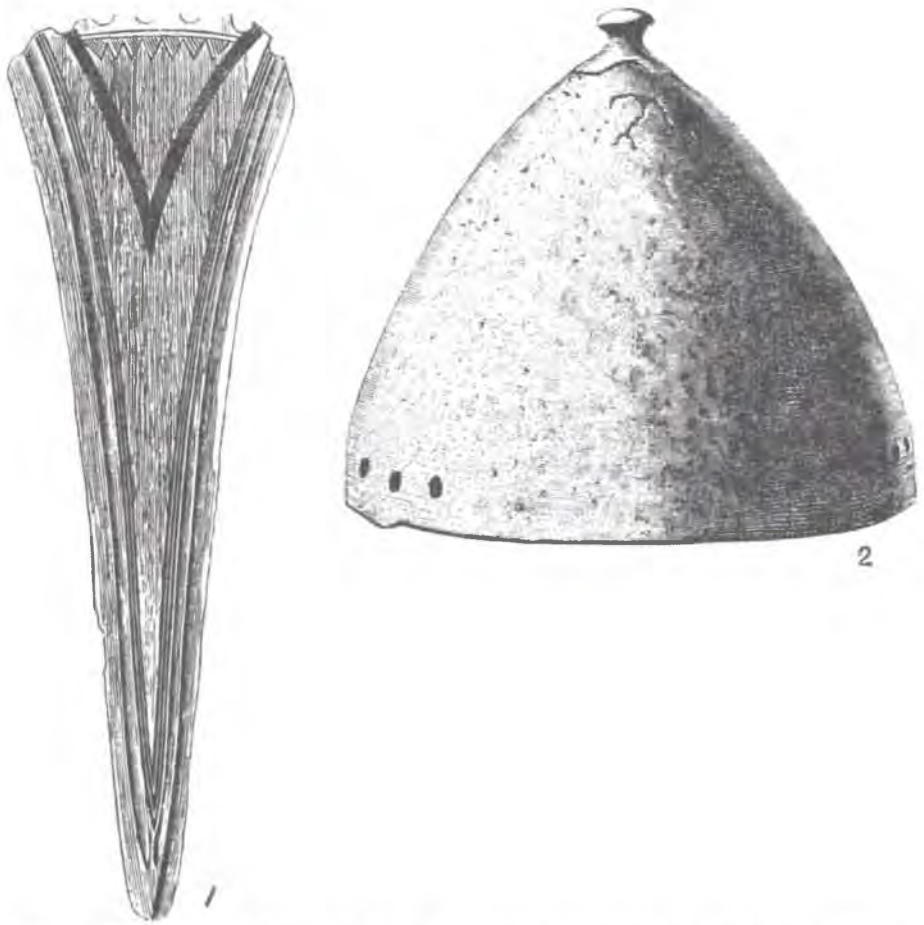


FIG. 23. The Beitszch hoard: **1**, dagger blade and **2**, helmet. *After* Montelius, 1900.

A signet ring from Shaft-grave IV shows warriors wearing helmets of the same shape. These helmets have plumes attached to the knobs on the top. A picture of another helmet like this appears on a vase from Tomb 5 at Isopata (Evans, 1914, p. 27, fig. 37), belonging to Late Minoan I at Knossos which Pendlebury dates 1580-1450 B.C. (Pendlebury, 1939, pp. 175, 224). The early Mycenaean helmets, however, cannot be matched with the Beitzsch copy. The closest analogue to it remains the Knossos helmet dating from *ca.* 1400 B.C. Since classical Únětice, as we have seen above, is not later than the sixteenth century B.C., the association of the Beitzsch helmet with classical Únětice daggers and neck-rings is dubious. Unfortunately, the Beitzsch helmet cannot be considered as a time marker for the Únětician chronology.

The efflorescence of spiral art in east central and central Europe is very probably a result of commercial contact with Mycenaean Greece. It appears in a magnificent variety of form in the classical Otomani culture in Transylvania, northern Hungary, and eastern Slovakia. Spiral designs were engraved on pottery (fig. 25, *1*) and bronze (fig. 26), gold, bone, or antler objects (figs. 27, 28). From eastern Hungary, eastern Slovakia, and Rumania, come the most beautifully decorated shaft-hole axes, swords, and daggers (figs. 26, 146). From the same phase comes the baroque spiral-boss decorated pottery (fig. 25, *1*; pl. 30). The peculiarly coiled spirals with their tails ending in small spirals found on pots (fig. 25, *1*) or bronze objects (fig. 26, *4*) are reminiscent of the spiral ornament of the golden plaque from the Mycenaean Shaft-grave III (fig. 25, *2*). Pottery decorated with running spirals is distinctive of the Wietenberg group, an eastern cousin of Otomani in eastern Transylvania known from the sites around Turda, Alba,

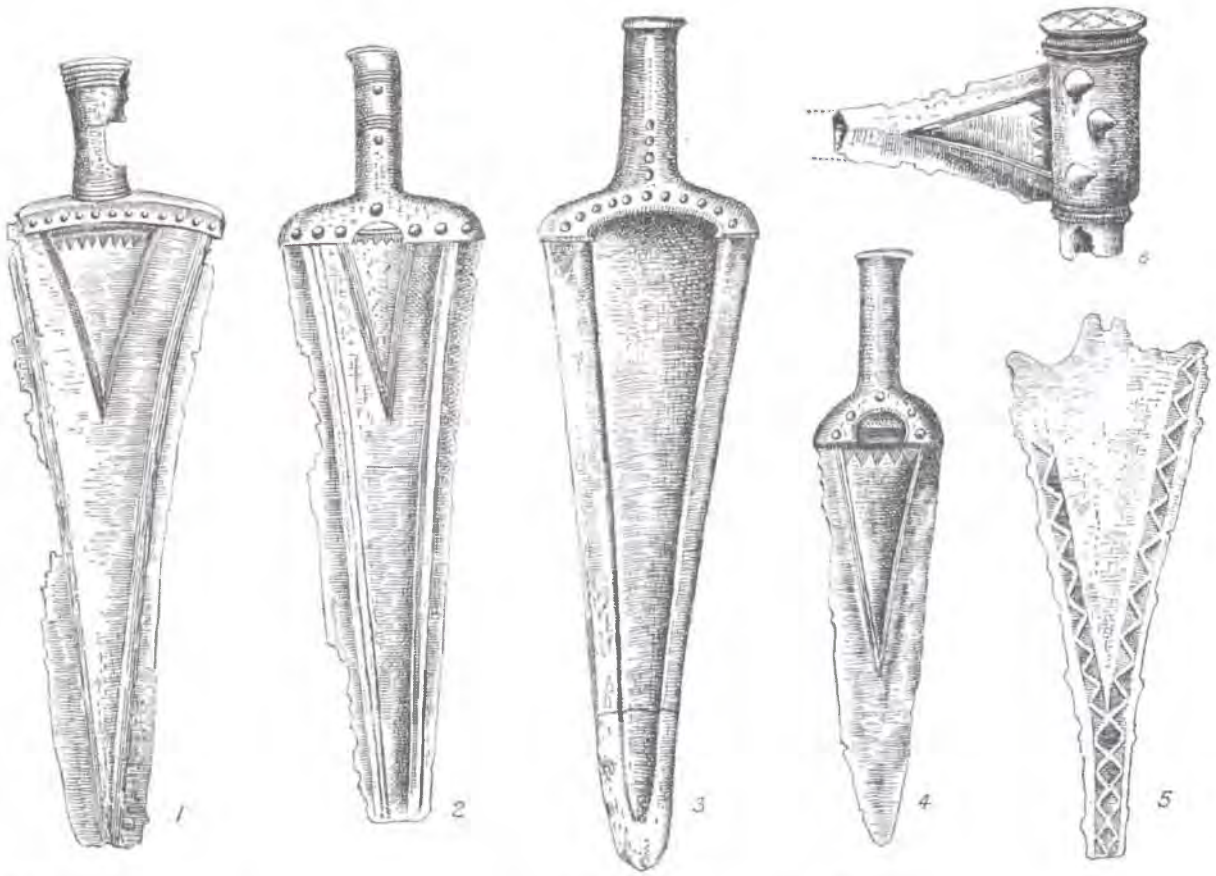


FIG. 24. **1-5,** daggers and **6,** halberd from the hoard of Granowo, district of Nowy Tomysl, western Poland. To the same hoard belong massive C-shaped bracelets, necklets and flanged axes.
Scale 1/4. *After* Knapowska-Mikołajczykowa, 1957.

Mureș, Hunedoara, Cluj, Someș, Odorhei, Sibiu, Brașov and in the district of Trei Scaune (Popescu, 1944, pls. VIII-XI). The decoration with interconnected spirals has very close analogues in the Mycenaean and Minoan art of the sixteenth and fifteenth centuries B.C. Gold plaques from the hoard of Țufalău, eastern Transylvania, were decorated profusely with running spirals (fig. 21, *8-11*). Antler discs with very similar spiral decoration also belong to the same chronological group. Figure 28, *8* shows an antler disc from the habitation site of Füzesabony and another comes from the classical Mad'arovce layer in the stratified site of Nitrianski Hrádok (pl. 10). Spiral ornaments of the same nature are also found on the socket of one spearhead from the hoard of Borodino (pl. 13, *3*; described below). A marble disc with spiral ("triskele") decoration was brought to light in the urnfield at Surčin, Syrmia, northern Yugoslavia (fig. 28, *9*), which is identical to the decoration of gold buttons from Kakovatos, Greece (fig. 28, 10, *11*). The cemetery of Surčin contained pottery of Vattina and Tolvadia type, but the finding circumstances of the disc are not known (information obtained from Prof. M. Garašanin). In addition to spiral-decorated discs, bone cylinders and bridle cheekpieces decorated with running spirals and pulley motifs were discovered in the late Únětice, Mad'arovce, and Füzesabony sites. Almost identical spiral and pulley motifs are present on a bone cylinder found in the site of Ásothalom, near Tiszafüred, eastern Hungary (fig. 27, *1b*), and on the golden or bone buttons from Shaft-graves IV and V at Mycenae (fig. 27, *2*). The Ásothalom site at Tiszafüred was excavated about ninety years ago; the finds are in the museum of Tiszafüred. The bone cylinder was in association with the latest forms of the classical Otomani (Füzesabony) phase, spiral-boss pottery, bronze pins with mushroom-heads,



FIG. 25. Spiral designs on **1**, a pot of the Otomani culture from Debrecen, northern Hungary, and **2**, a gold plaque from Shaft-grave III in Mycenae. Scale: pot approx. 1/3; plaque approx. 1/1.
After Hampel, 1887, and Schliemann, 1878.

curved pins with barbs, bridle bits, gold hair-rings, and spirals, whetstones, harpoons, and a mold for a flat axe (information from Dr. I. Bóna, Budapest). The Tiszafüred pottery and hair-rings have close analogues in the cemetery of Megyashó (pl. 30). Bone cylinders with spiral-pulley motifs appeared in rubbish pits of the Blučina-Cezavy (fig. 28, *1*, *2*) and Nové Hory habitation sites near Věteřov in Moravia. An analogous bone cylinder and a bridle cheekpiece with spiral and pulley decoration came to light at Vattina, in western Rumania (fig. 28, *3*, *4*). A running spiral is present on cylindrical bone bridle cheekpieces found in the fortified village of Nitrianski Hrádok, western Slovakia, belonging to the Mad'arovce group (fig. 28, *5*; pl. 10). The same kind of ornament also appeared on the cheek-piece found in the top layer of the stratified site of Vinča at Belgrade (fig. 28, *6*) and in the cemetery No. 2 of Monteoru, eastern Rumania, which is classed as Monteoru Ia (fig. 155).

The Füzesabonian, Mad'arovce, and Věteřov discs, cylinders, and cheekpieces are similar to the spiral and pulley ornament on the gold buttons from the Mycenaean shaft-graves. Hence the Věteřov and Mad'arovce assemblages in Moravia and western Slovakia and the classical Otomani (Füzesabony) culture are dated to the sixteenth century B.C. (Dezort, 1946; Werner, 1952; Tihelka, 1953b, 1958; Hachmann, 1957b). However, although the similarity of ornament cannot be denied, the complete contemporaneity of late Únětice and classical Otomani with the Shaft-grave period is questionable. These phases very probably date from the later part of the Shaft-grave period and also immediately after Late Helladic I.

Many arguments back this chronological position. First, many elements present in eastern central European spiral art can be compared to the spiral art of Late Helladic II A. The spirals (the "triskele" motif in particular) on gold buttons from Kakovatos (*ca.* 1500-1450 B.C.; fig. 28, *10*, *11*) are, for instance, very similar to the eastern central European spiral ornament motifs on antler and marble discs (fig. 28, *8*, *9*). In Greece, in the whole Aegean area, and in Syria, spiral and pulley motifs continued to be engraved during the fourteenth century B.C. and later. An ivory disc with the spiral and pulley decoration was found at Prosymna (fig. 27, *3*) in the dromos Tomb 34, a tomb built in Late

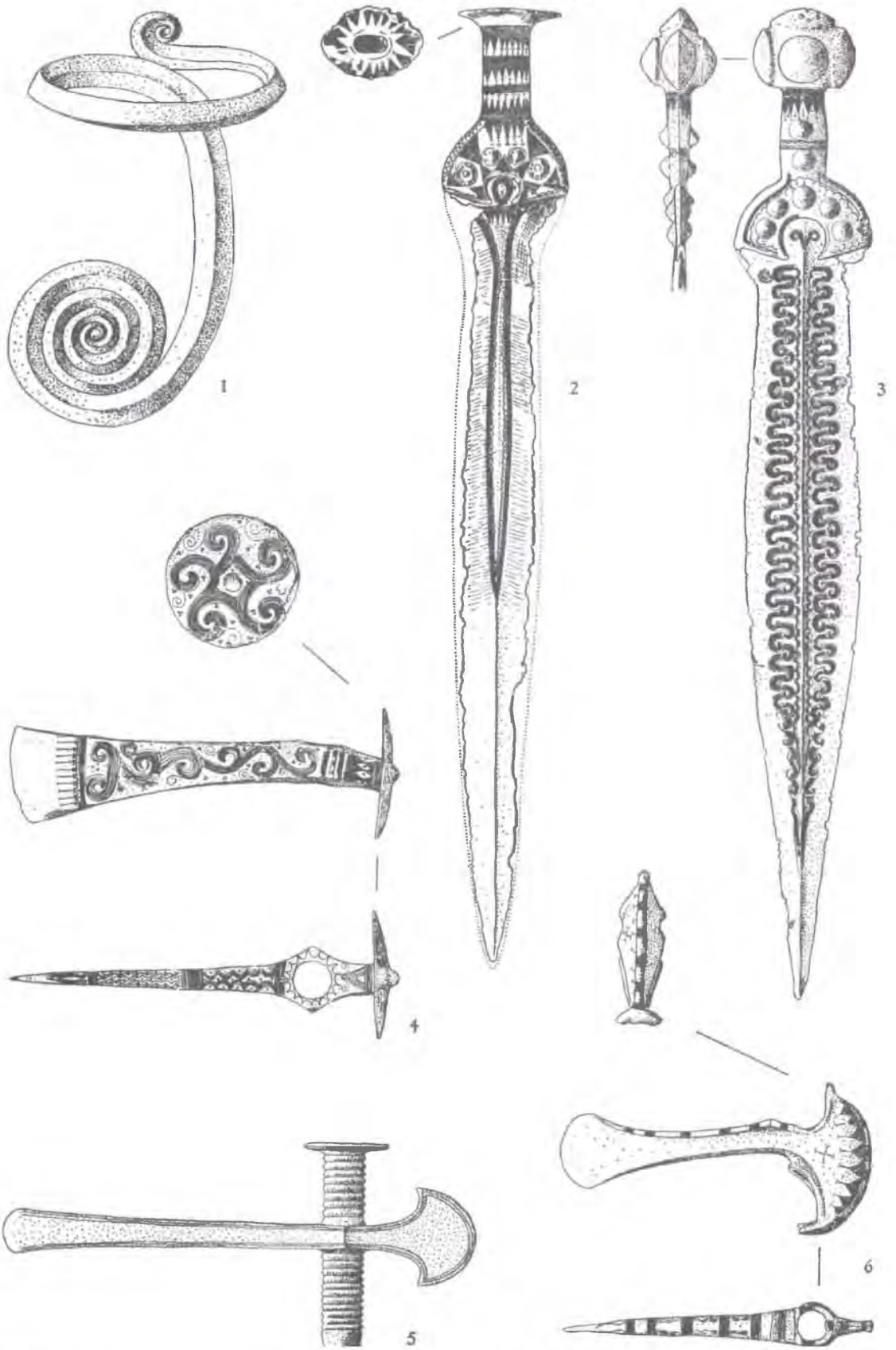


FIG. 26. The Apa hoard, northwestern Rumania. **1,** wrist-guard; **2, 3,** bronze-hilted swords; **4,** "Hungarian" battle-axe; **5,** axe with a vertical shaft-tube; **6,** shaft-hole axe with a crescentic butt. Scale: 1/2. *After* Hachmann, 1957b.



FIG. 27. Spiral designs on cylinders and discs from central Europe, Greece, and Syria. **1** *a*, *b*, bone cylinder from the site of Ásothalom near Tiszafüred, eastern Hungary; **2**, gold button from Shaft-grave No. V, Mycenae; **3**, ivory disc from the cemetery of Prosymna, Greece; **4-7**, ivory cylinder boxes and a handle from Atchana (**4**, level II, 1350-1273 *B.C.*; **6**, level IV, 1447-1370 *B.C.*; **7**, level VI, 1750-1595 *B.C.*). Scale: approx. 1/2. *After* Tompa, 1937 (**1**); Schliemann, 1878 (**2**); Blegen, 1937b (**3**); and Woolley, 1955 (**4-7**).

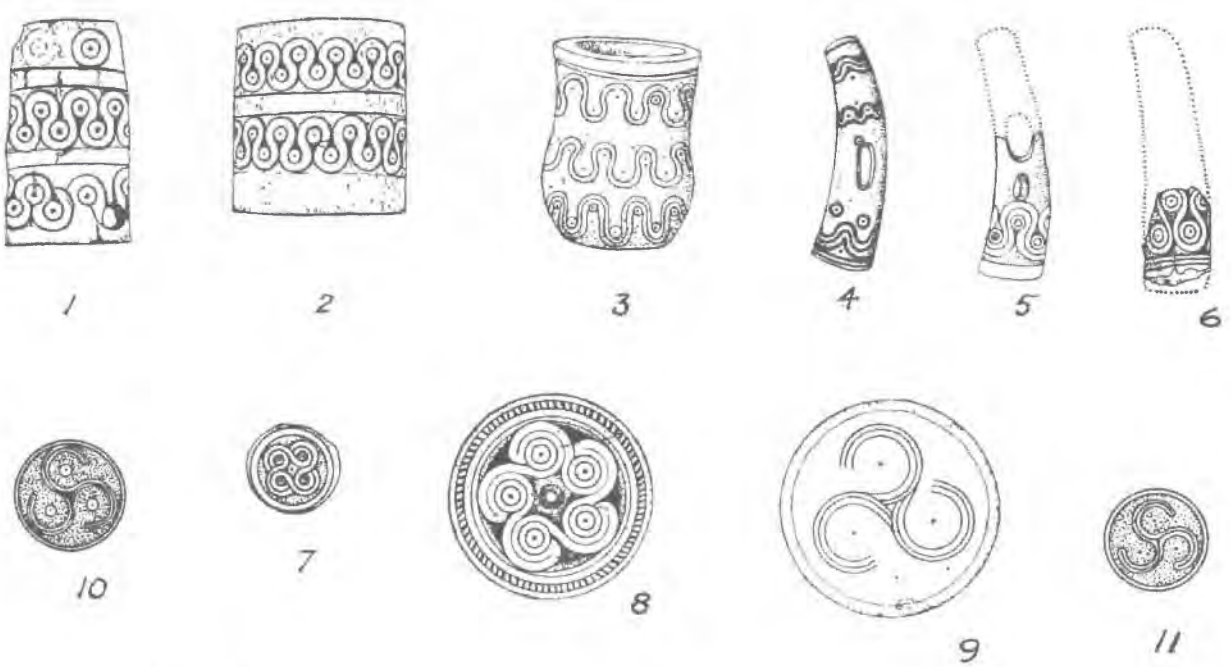


FIG. 28. Spiral designs in eastern central Europe and Greece of Late Helladic II A. **1, 2**, bone cylinders from the habitation site of Cezavy at Blučina near Veterov, Moravia; **3, 4**, bone cylinder and cheekpiece from the habitation site at Vattina, western Rumania; **5**, cheekpiece for horse bridle from Nitrianski Hrádok, western Slovakia; **6**, fragment of a cheekpiece of bone from the top layer of the stratified habitation site of Vinča at Belgrade; **7**, disc of antler from Veterov, Moravia; **8**, disc of antler from Füzesabony, Hungary; **9**, marble disc from the urnfield at Surcin, n. Yugoslavia; **10, 11**, gold buttons from Kakovatos, Greece. Scale approx. 1/2. *After* Hachmann, 1957b.

Helladic II, but used in Late Helladic III A (Blegen, 1937b, II, p. 63, fig. 262, *2*). A similar ornament is present on the bone and ivory cylinders from Tell Atchana (Alalakh), northern Syria, found in levels II-VI. The dates for Alalakh levels used by Sidney Smith and Woolley are from 1273 to 1750 B.C. (Woolley, 1955, p. 399; cf. pls. LXXVII and LXXVIII). According to Woolley's chronological table the cylinder from level II (fig. 27, *4*) dates from the period 1350-1273, the ivory handle from level III or II (fig. 27, *5*) should belong to the period between 1370-1273 B.C., and the bone box from level IV (fig. 27, *6*) is to be dated with the period 1447-1370 B.C. One cylindrical box with pulley motif was found in level VI which is dated 1750-1595 B.C. (fig. 27, *7*). Hence it is seen that the spiral-pulley motif had a long life. The late parallels are mentioned here not to prove the late chronology of the classical Otomani (Füzesabony) and late Únětice phases, but only to illustrate the fact that the spiral-pulley motif is not necessarily to be attributed to the Shaft-grave period. The pulley motif alone is not a sufficient proof for the sixteenth century B.C. connection, for in a very similar form it existed in the fifteenth and fourteenth centuries B.C.

Second, if we assume that the spiral art of the classical Otomani and late Únětice culture developed on account of strong influences from Greece during the Shaft-grave period, we have to allow a certain time lag for the evolution of this art in central Europe. During the Füzesabony phase of the Otomani culture the spiral art on ceramics had occurred already as an individualistic style; it was not an imitation of Mycenaean art. I am inclined to assume the period from 1500-1450 B.C. as the peak for Mycenaean influences on central Europe.

Classical Otomani is contemporary with late Únětice (the Věteřov group in Moravia, Böheimkirchen in lower Austria and the Mad'arovce group of western Slovakia). This is well shown not only by the spiral motifs but also by the spread of weapons. Axes with a long and ribbed vertical shaft-tube (such as fig. 26, *5*), called "Bohemian axes" or "axes of Křtěnov type" are frequent in the late Únětice assemblage of finds (cf. the habitation site at Banov near Věteřov, Moravia: Tihelka, 1946, p. 55, fig. 2, *1*; Křtěnov hoard near Týn nad Vltavou, and Touškov hoard near Stod, Bohemia: Hájek, 1950, pp. 97, 98, figs. 1 and 3). The same type of axes are typical of the Mad'arovce group in western Slovakia: cf. particularly graceful variants from the hoard of Nitrianski Hrádok "Zameček" (pl. 11, *2*, *3*). The same hoard contained an axe of Hajdusámson or Ţufalău type (pl. 11, *1*), a spearhead (pl. 11, *4*), and axes with a V-shaped flange (pl. 11, *5*, *6*). "Bohemian" axes are also reported from lower Austria (cf. Unter-Nalb near Retz, found in a grave in association with a pin with a perforated globular head: Willvonseder, 1937, 403, pl. 53, *2*), from Mecklenburg, Germany (cf. Fürstensee near Stargard: Hachmann, 1957b, No. 246), and from Pomerania on the Baltic Sea (cf. Klein-Bünzow, district of Greifswald: Kersten, 1958, No. 309). In the middle Danube basin they appear in Vatya III (information from Dr. Bóna, Budapest) and in the Szöreg IV assemblage of the late Pecica culture (fig. 125, *7*).

Swords, daggers, and axes of this phase spread over a large area of central Europe and over the western and southeastern Baltic area. Distribution maps of axes with vertical shaft-tubes (like fig. 26, *5*), earliest type of "Hungarian" battle axes (like fig. 26, *4*), and swords of Apa type (like fig. 26, *2*) over central Europe, Mecklenburg, and southern Sweden are given by Hachmann (1957b, maps 13-15). These types of weapons are contemporary with the spread over central Europe and the Baltic area of pins with globular perforated heads and twisted stems (such as fig. 178, *1-3*) and of flanged axes with V-shaped stopridge (such as fig. 179, *6*, *7*). Pins with globular heads are useful in correlating the late Únětice finds with those of southern Germany and the western Baltic area. The hoard of Lanquaid, district of Rottenburg in Bavaria, which is one of the richest from this phase, contained pins with globular heads, spatula-shaped flanged axes, and spearheads (Hachmann, 1957b, pl. 54). In the Northern Bronze Age culture, pins with globular heads belong to the "Horizon II" of the Early Bronze Age (Hachmann, 1957b, pl 2-13) or I b in Montelius' scheme.

5. *Mycenaean influences in the northern Pontic area and the commercial relations between the Black Sea, the Caucasus, and the Near East*

The Bronze Age finds in the Ukraine belong chiefly to a different class of forms which are not related to, and cannot be dated by, those of central Europe. However, the northern Pontic area and the Caucasus are themselves connected by a class of artifacts whose analogies in the Near East and Mycenaean Greece help to establish a chronology for the Russian bronzes.

a. *The Borodino hoard and its analogies in Mycenaean Greece and the Caucasus*

The Borodino hoard (pl. 12) was found in 1912 near the village of Borodino, in the former district of Akkerman in Bessarabia, and was described by Shtern (1914). In 1949 the hoard was again described by Krivtsova-Grakova.

It contained 17 objects, six of which were fragments. All lay originally in a pot of which only one sherd survived. The hoard included metal and stone artifacts: two well preserved, long, silver spearheads with ornamental gold plates on the sockets, and the socket of a third; one silver dagger, the middle rib of which was covered with a gold ornamented plate; a silver pin with a rhomboid head ornamented with gold incrustation; four polished stone axes with perforations, and fragments of a fifth; three well polished maceheads made of alabaster; and two copper plates with holes, which may have belonged to a wooden object. All of the objects mentioned had been finely finished. The axes, as well as the maceheads, were made of semiprecious stone and probably served a symbolic function, possibly that of power. From its richness one may presume that the hoard belonged to an important person. It is probably rightly called a royal hoard.

The Borodino forms have the closest analogies with the northern Pontic area and the Caucasus, but it is the ornaments executed on the gold plates covering the silver pin and dagger which show their chronological tie with the Late Helladic I and II A. The peculiar "double-lily" ornament on the pin resembles the ornaments on the gold buttons from the Mycenaean Shaft-graves Nos. I, IV and V (pl. 12, *11*; pl. 13, *6*), but the "pulley" motif, frequent on the buttons (pl. 13, *6*), is not found on the Borodino pin. The "triskele" and "S" motif of the Borodino dagger (pl. 13, *1*) are found also on the gold buttons as well as on other objects from Shaft-graves Nos. I, IV and V (pl. 13, *5*) and from Late Helladic IIA tholos tombs, like Kakovatos (fig. 28, *10*, *11*). The spiral ornament on the socket of the broken spearhead of Borodino (pl. 13, *3*) is very much like the Mycenaean spiral motifs engraved on grave walls, ornaments, and pottery. There is no doubt about the similarity of the decorative motifs on objects from the Mycenaean culture and from the Borodino hoard, but the forms of the Borodino pin, axes, and maceheads do not have analogies in Greece. Pins with rhomboid plate heads are known from the western Ukraine and eastern Rumania; the axes and maceheads are Caucasian types, and only the dagger and spearheads are generally related to the Late Helladic and Minoan forms (cf. the dagger from Gournia, Nom. Lasithi, Crete: Hachmann, 1957b, pl. 67, *1*, and spearheads from the shaft-graves II and IV: Karo, 1933, pls. 77, 98; Hachmann, 1957b, pl. 68, *6*, *7*).

The beautiful spearheads of Borodino have analogies all over eastern Europe: in southern Russia, central Russia, the Volga-Kama area in eastern Russia and the eastern Baltic area. The same type is found in the Ural region and in western Siberia.

Perforated stone axes made of nephrite, serpentine, and other semiprecious stones in a shape more or less related to that of Borodino are known from the northern Pontic area, between Bessarabia (Moldavia), the lower Volga and the central Caucasus. Similar axes come from eastern Rumania (cemetery of Poiana: Dunăreanu-Vulpe, 1938, p. 154, figs. 3, 10-12; in the same cemetery segmented faience beads and pear-shaped hair-rings made of bronze wire were found). In the Caucasus these axes have clear

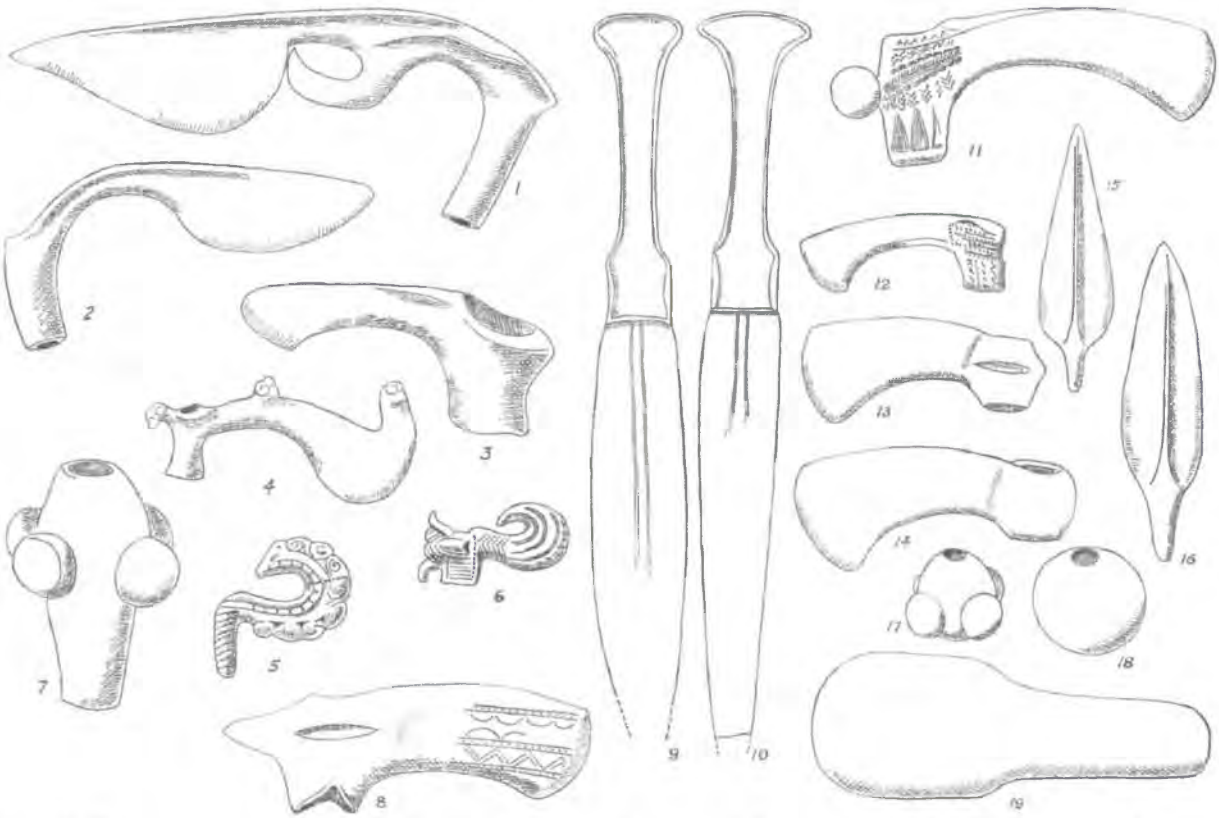


FIG. 29. Finds from the cemetery of Faskau near Galiat, northern central Caucasus. **1-4, 8, 11-14,** copper axes; **5, 6,** axe-pendants of copper; **7,** copper macehead; **9, 10,** daggers of Near Eastern type; **15, 16,** spearheads; **17, 18,** maceheads of serpentine; **19,** stone pestle. Scale: **1-4, 7, 8, 11-19,** approx. 1/4; **5, 6,** approx. 1/2; **9, 10,** approx. 1/3. *After* Uvarova, 1900 **(1-8),** and Krupnov, 1951 **(9-19).**

prototypes in the Early Bronze Age. Axes of this form had a long life north of the Black Sea. In the middle of the second millennium B.C. and later they continued to be made side by side with copper axes, even in the central Caucasus (fig. 337 *A*, *11*). Analogies can be sought in metal types. The semicircular blade of one of the Borodino axes seems to imitate copper axes of Caucasian type, such as those known from Faskau (fig. 29, *1*, *2*, *4*), and the curved blade appears also on miniature axe-pendants from Rutkha (fig. 337, *A*, *5*), Faskau (fig. 29, *5*, *6*) and Esheri in Georgia (fig. 328 *B*, *6*). One copper axe with a broad edge, very similar to those from Borodino, was found in Kurgan No. 7 at the Andrjukovskaja site in the Kuban River basin in the northern Caucasus (fig. 30, *3*). This axe was discovered together with a spearhead (fig. 30, *1*) and dagger blade (fig. 30, *2*) of a type common to northern Iran during the middle of the second millennium B.C. (Compare the dagger and the spearhead from Talysh I (fig. 20, *2*, *5*).

Maceheads of alabaster have identical equivalents in the central Caucasus. They are known both from stray finds (cf. Krupnov, 1951, Ris. 9, *10*) and from graves. In the cemetery of Faskau there were found maceheads of white serpentine of the same shape as those from the Borodino hoard (fig. 29, *17*, *18*; pl. 12, *1-3*), and also similar types of maceheads made of copper or bronze (fig. 29, *7*). The same type of macehead is known from Rumania, where a macehead of serpentine, decorated with four semi-globular bulbs, identical to that of Borodino, comes from Ocna Sibiului, district of Sibiu, eastern Transylvania (Horedt, 1940, pl. I, *4*). Several other maceheads of the same kind were found in the districts of Alba, Mureș, and Hunedoara in Rumania (Horedt, 1940, pp. 285-86, nos. 6, 13, 14). From this it appears that the egg-shaped maceheads, decorated with four semiglobular bulbs and made of semiprecious stone, were spread over a large area around the Black Sea. They were also exported to the

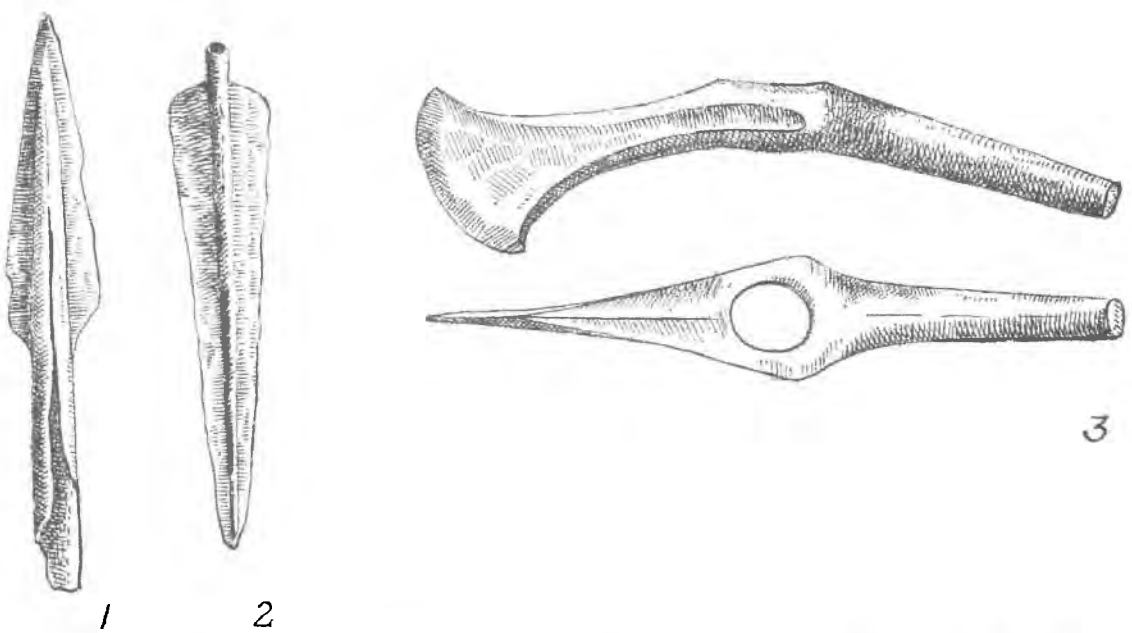


FIG. 30. **1**, copper spearhead, **2**, dagger blade and **3**, battle-axe from the barrow at Andrjukovskaja, Kuban River area, northern Caucasus. Scale: **1, 2**, 1/4; **3**, approx. 1/2. *After* Iessen, 1951.

north, for one macehead of Borodino type was discovered as far north as the district of Perm in the middle Ural area (Aspelin, 1877, p. 149, fig. 627).

Analogies with certain forms from the central Caucasus, belonging to the Faskau period of the Koban culture offer another tie with a more absolute chronology.

b. *Faskau type finds in central Caucasus and their relations with the Near East*

A wealth of archaeological material has been excavated in the cemeteries located in the upper Terek basin. The greatest amount belongs to the cemeteries of Verkhnjaja Rutkha near Kumbulta and of Faskau near Galiat, in the district of Digora, and from an extraordinarily rich grave at Brili in northern Ossetia. The Faskau and Rutkha cemeteries were excavated, chiefly by amateurs, during the last decades of the nineteenth century, and the finds are scattered in various museums in Russia (chiefly the State Historical Museum in Moscow) and in Vienna (Naturhistorisches Museum). In 1900 Countess Uvarova published those finds which were in Russian collections (Uvarova, 1900), and since that time the cemeteries have been repeatedly devastated by amateur diggings. In 1935 and 1938, however, scientific excavations were resumed by Krupnov, who succeeded in finding some half-destroyed graves, built of stones in a rectangular plan, and containing grave goods *in situ* (Krupnov, 1951). The Brili grave was excavated by Gobedishvili in 1959 (finds are in the Archaeological Museum of Tiflis, Georgia). Since the name "Faskau" is known now for over 70 years and is easier to pronounce than "Verkhnjaja Rutkha", it is chosen for the designation of the chronological phase in the central Caucasus.

The Rutkha assemblage, besides a great number of white paste and faïence beads (fig. 337 *A, 3*), contained copper daggers (fig. 337, *B, 1-4*), copper spearheads and arrowheads (fig. 337, *B 5*), gold and copper hair-rings (fig. 337, *A, 6*), copper pendants in the shape of horns or heads of horned animals and birds (fig. 337, *A, 7*), miniature axes with semicircular blades (fig. 337, *A, 5*), long pins with double spiral heads of copper plate (fig. 337, *A, 8-10*), bracelets and head ornaments, or neck-rings with tapered ends (fig. 337, *A, 1, 2*), head ornaments of copper wire with overlapping flat ends, perforated stone axes (fig. 337, *A, 11*), heart-shaped or elongated triangular flint arrowheads with concave bases (fig. 337, *B,*

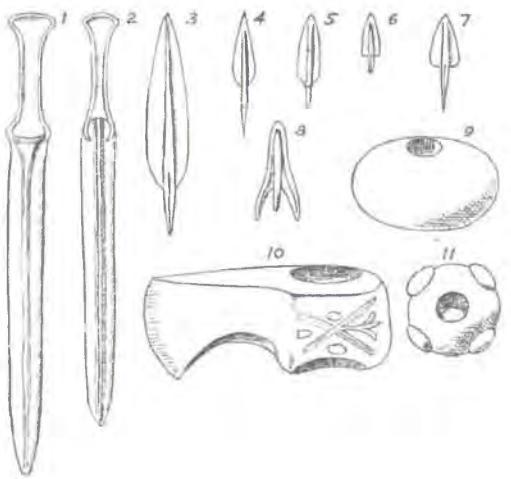


FIG. 31. **1, 2,** daggers of Near Eastern type, **3,** spearheads, **4-8,** arrowheads, **10,** copper axe, and **9, 11,** maceheads of alabaster from the site of Agha-Evlar, Talysh, northern Iran. Scale approx. 1/4. *After* Morgan, 1901, and Schaeffer, 1948.

7-11), whetstones (fig. 337, *B* ,*6*), and, finally, a considerable amount of pottery. The recent excavations proved that these finds belong together, being the contents of several graves. A major part of the copper axes, pendants, and pottery very probably belongs to the same period, but some finds discovered near Kumbulta date from a later period. In the Rutkha cemetery, daggers of Near Eastern type were found.

The Faskau assemblage consisted of a great many copper axes with long sockets and long, variously shaped blades (fig. 29, *1-4*, *11-14*), bronze knives and spearheads, copper axe pendants (fig. 29, *5*, *6*), and maceheads of serpentine (fig. 29, *17*, *18*), spherical and oval in shape with four half-globular bulbs around the middle section. Flint arrowheads were of the same elongated triangular shape with concave bases as in the Rutkha cemetery. Stone pestles and potsherds also resembled those from Rutkha. In Faskau daggers of Near Eastern type were also found (fig. 29, *9*, *10*). The grave of Brili comprised a number of "baroque" axes of Faskau character, 11 pins with flat disc heads decorated with embossed concentric circle motifs, two pins with conical heads and a perforation on the neck, a copper hair-ring with thickened overlapping ends, a number of bracelets having a triangular or oval section, round and biconical bronze beads, annular faïence beads of light blue and greenish color, daggers of Near Eastern character, socketed spearheads, and ornaments with horn decorations.

The Faskau phase is distinguished for the variety of axe-forms. Some showed true artistry in form and frequently were decorated with geometric designs (fig. 29, *11*, *12*). Several axes had a globular bulb attached to the back of the socket (fig. 29, *11*). Related axes are reported from Georgia and the Kuban basin in the northern Caucasus. These similar forms indicate that the Borodino hoard and the Caucasian finds of Faskau type must be approximately contemporary.

In attempting to establish a more absolute chronology for both the Borodino and the Faskau assemblages, one has to look further south for analogies. The key point for indicating a chronology is the daggers of Near Eastern type (fig. 29, *9*, *10*) which appear in Iran, Syria, and elsewhere. They are known from Talysh in northern Iran, west of the southern Caspian Sea (fig. 31, *1*, *2*), and belong to the period 1450-1350 B.C. or Late Talysh 2 according to Schaeffer (1948, pp. 404-18); they were found in association with copper axes (fig. 31, *10*), spearheads (fig. 31, *3*), arrowheads (fig. 31, *4-8*), and maceheads (fig. 31, *9*, *11*). The date of Late Talysh 2 is shown by "gray glaze" Mitanni seals, which occur between the southern Caspian and eastern Mediterranean coasts. In Syria, these seals, along with daggers, appear in Late Ugarit 2 (Ras Shamra). Late Ugarit 2 is dated by scarabs of Amenophis III and IV and by numerous Egyptian hieroglyphic, Canaanite cuneiform, Babylonian, Sumerian, and Hurrian inscriptions. The latter were produced during the reign of King Nqmd, contemporary of Amenophis III and IV

and of the Hittite king Suppiluliuma (Schaeffer, 1948, p. 10). In Greece, seals of this kind are known from Late Helladic IIIA (Blegen, 1937b, Prosymna tombs XXIV and XXXVIII, fig. 596, *85*, *131*) and in Mycenae they are dated not later than 1400 B.C. (Wace, 1932, p. 197, fig. 28). In addition to the daggers of Near Eastern type, other copper artifact forms, such as the knives, spearheads, and arrowheads from Rutkha and Faskau, have close analogies in northern Iran. There is a general similarity between the copper artifact types of Late Talysh 1-2 and those of the Faskau phase. It is obvious that close commerical contacts existed between the Caucasus and Iran.

As a result of comparison with Mycenaean ornaments and Near Eastern assemblages, the date of the Faskau, Borodino, and other related finds must be fitted in somewhere between 1500 and 1450/1400 B.C.

6. *Conclusions*

Commercial relations and changing types of bronzes within one cultural group indicate several chronological phases during the period between 1650/1600 and 1450/1400 B.C. The first (a) is contemporary with the classical Únětice, the second (b), with late Únětice.

a. *Ca. 1650 B.C. – ca. 1550 B.C.*

The dispersion of classical Únětice bronzes over a vast expanse of central and northern Europe, the presence of Baltic amber beads in central Europe and in the early shaft-graves of Mycenae indicate the following chain of contemporary cultures:

In Greece: end of Middle Helladic and beginning of Late Helladic I.

In central Europe (southern, central and eastern Germany, western Poland, western Czechoslovakia and lower Austria): classical Únětice culture.

In eastern central Europe (eastern Hungary and western Rumania): the later phase of early Pecica culture (Szöreg III in the sequence of the Szöreg cemetery) and late Hatvan or Tószeg B (according to the stratigraphy in the Tószeg tell on the Tisza River) distributed north and northeast of the Pecica culture. Early Otomani in western Transylvania and Vatya I-II in the middle Danube basin, western Hungary. North of the lower Danube: Perşinari phase of the Tei culture.

In the southeastern Baltic area (northern and eastern Poland, Lithuania and southern Latvia): Horizon I or Phase I of the Early Bronze Age Baltic culture.

In northwestern Europe (northern Germany, Denmark, and southern Sweden): Late Neolithic or flint dagger period in traditional terminology. Horizon I of the Early Bronze Age in Hachmann's scheme.

In southwestern England: early Wessex culture or Wessex 1.

There are not many finds which would indicate contemporaneity between the central European and Pontic cultures, but from the associations during the succeeding phase we may deduce that classical Únětice and contemporary groups of eastern central Europe ran parallel with the phase preceding Pokrovsk of the Timber-grave culture, preceding Faskau of the Koban culture and preceding Sejma of the Turbino culture in eastern Russia.

In northern Russia, the northern Baltic area and northeastern Russia, the culture of the Neolithic stage continued.

b. *Ca. 1550 B.C. – ca. 1450 B.C.*

The commercial relations in Europe during this period indicate the following chain of simultaneously existing cultures:

In Greece: Late Helladic (Mycenaean) I and II.

In central Europe: late Únětice (in a broad sense; it also includes groups known by the names Věteřov in Moravia and Böheimkirchen in lower Austria, and the Mad'arovce in western Slovakia and northwestern Hungary). This is Phase A_2 in Reinecke's scheme.

In eastern central Europe: late Pecica (Szöreg IV) in the lower Tisza and lower Mureș basins; Vatya III on the middle Danube in western Hungary; classical Otomani (including Füzesabony in northern Hungary, eastern Slovakia and northwestern Rumania and the Wietenberg group in eastern Transylvania); Monteoru Ia in Moldavia; Vattina-Gîrla Mare in northern Yugoslavia and southwestern Rumania.

In southwestern England: late Wessex culture or Wessex 2.

In northwestern Europe (northwestern Germany, Denmark, and southern Sweden): Horizon II of the Early Bronze Age in Hachmann's scheme, or Northern Bronze Age of the beginning of Period I in Montelius' scheme.

In the southeastern Baltic area (northern and eastern Poland, Lithuania, southern Latvia): Phase II of the Early Bronze Age Baltic culture or "Iwno".

North of the Black Sea and the northern Caucasus: Borodino in Bessarabia and the Faskau phase of the Koban culture in the central Caucasus.

In northern Iran: Late Talysh 1 (in Schaeffer's scheme, based on Morgan's excavations).

II

MIDDLE BRONZE AGE

Ca. 1450 B.C. - *ca.* 1250 B.C.

A. RELATIONS BETWEEN CENTRAL EUROPE AND THE MYCENAEAN CULTURE OF THE LATE HELLADIC IIIA PERIOD

1. *The wide distribution of central European bronzes in connection with the influence and expansion of the "Tumulus people", ca. 1450 - ca. 1325/1300 B.C.*

a. *Early Tumulus or Koszider horizon*

The Early Bronze Age of central and northern Europe came to an end with a rapid change in metal forms which must have been caused by expansions and mixtures of cultural groups. There is little doubt that this change was connected with the growing power and expansion of the Únětice-Tumulus people. Many new bronze forms originated between the central German and Bohemian mountains, the Alps, and the western Carpathians and were diffused over an enormous area of Europe. Influences to the south, north, and east were so strong that in practically every cultural grouping – whether western or south-eastern Baltic, northern Carpathian, Otomani in northeastern Hungary and northwestern Rumania, Pecica in the lower Tisza basin, Vatya in the middle Danube plain, the Incrusted Pottery group of western Hungary – artifacts of similar appearance were found. The question of the great "Tumulus expansion" will be dealt with in the description of central and eastern central European cultures. Here I wish to give a brief survey of new forms of bronzes. Their wide distribution serves well for purposes of synchronization of many cultural groups. In the traditional chronological schemes this new assemblage of bronzes is labeled Phase B_1.

Due to the fact that in Hungary in times past hundreds of bronzes diagnostic for Phase B_1 were known, they were and still are called "Hungarian" but this term is confusing. Actually, we should understand them as bronzes belonging to the period of the great "Tumulus" expansion and influence over all central Europe from eastern France in the west to the lower Dnieper in the east, from the Baltic Sea in the north to the lower Danube in the south. Another name, a more scholarly, "bronzes or hoards of Koszider type", was introduced by Mozsolics (1957) in her description of two large hoards found in the site of Dunapentele-Kosziderpadlás on the Danube, south of Budapest in 1951 and 1953 (pl. 14). In the same locality the third large hoard was discovered in 1957 (Bóna, 1958). The Dunapentele-Kosziderpadlás hoards comprise the most frequent and typical bronzes of this period, and therefore the name "Koszider" can be used as a technical archaeological term. Bóna has noticed in his study on chronology of the Koszider hoards (Bóna, 1958, pp. 211 ff.) that there are some slight chronological differences between hoard I and hoards II and III from Dunapentele-Kosziderpadlás; hoard I (pl. 14, *1, 2, 4, 14-16*) precedes hoard II (pl. 14, *5, 7-10, 17-19*) and III. Slight typological differences can be seen among many other hoard and grave finds from Hungary, Germany, Poland, Czechoslovakia, and Rumania. This shows that the period was not a meteoric occurrence, and it comprised the metal production of more than a single generation. In spite of insignificant typological differences, hundreds of

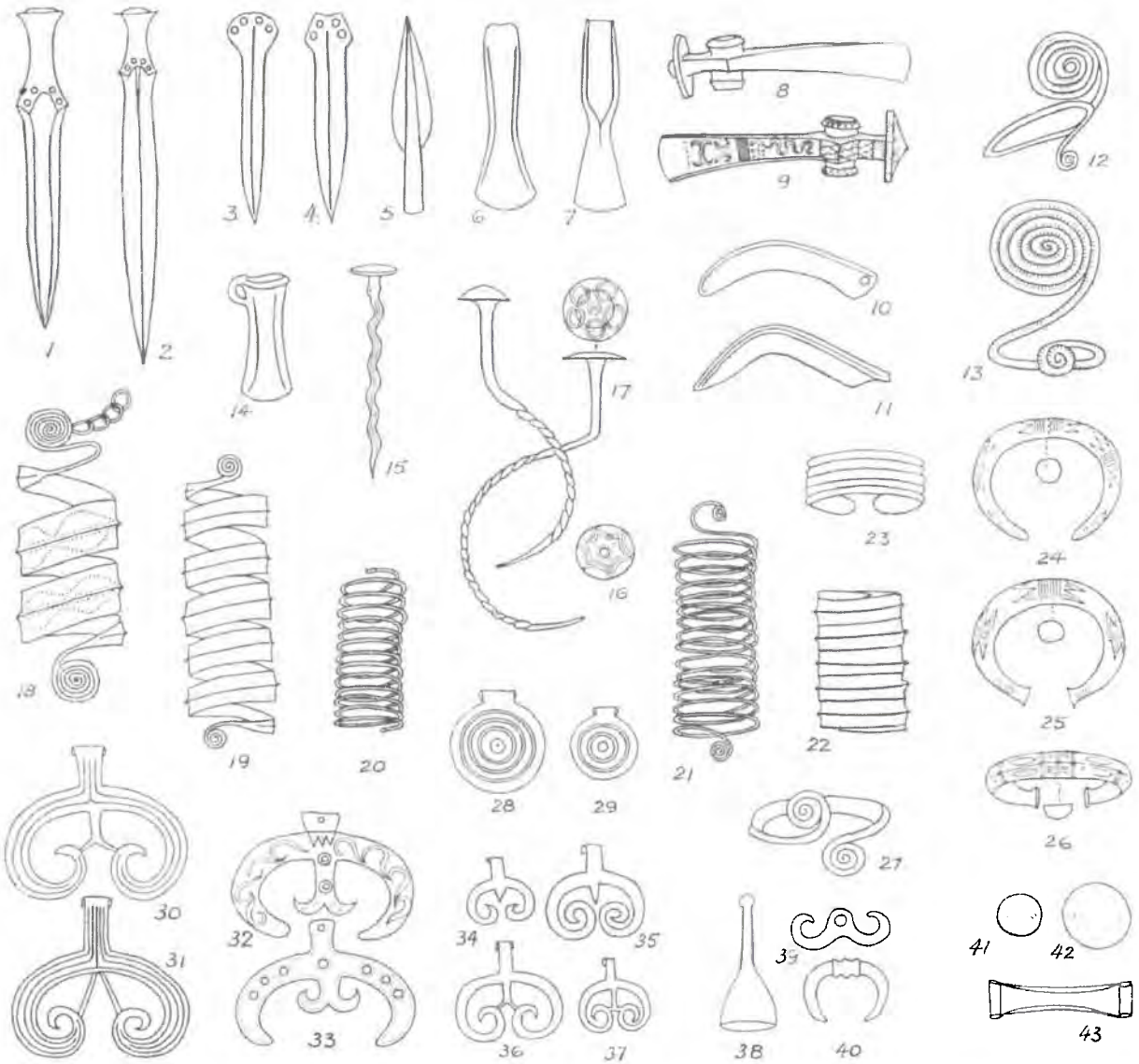


FIG. 32. Bronzes of Koszider type or Phase B_1. **1, 2,** bronze-hilted daggers; **3, 4,** dagger blades; **5,** socketed spearhead; **6,** flanged axe; **7,** axe with a V-socket; **8, 9,** battle-axes; **10, 11,** sickles; **12, 13,** wrist-guards; **14,** socketed celt; **15-17,** pins; **18-22,** spiral arm-bands; **23-27,** bracelets; **28-37, 39, 40,** pendants; **38, 41-43,** ornamental plates. The bronzes reproduced are basic types which repeat themselves in a number of hoards in Hungary, Slovakia, Rumania, and elsewhere: Koszider I-III, Rákospalota, Alsonémedi, Racegres, Pusztaszentkirály, Simontornya, Mezöbereny, Szentendre, Nagyhangos B, Oroszipuszta, Zájta, Barca, etc. Scale: approx. 1/4. *After* Bóna, 1958.

hoards and graves all over central Europe represent a certain unity of style. Below I shall enumerate the bronze forms which typify this period.

Among diagnostic artifacts are: several variants of battle-axes with a double-conical socket on each side of the shaft-hole, and with a flat conical butt-end, richly decorated with spirals and geometric ornaments, or plain (figs. 32, *8*, *9*; pl. 14, *6*); massive bracelets with tapered or with tapered and projecting ends, plain or decorated with clusters of vertical striations, zigzags, or striated triangles, and a biconvex ("fish-bladder") motif (pl. 14, *12*, *13*; figs. 32, *24-26*; 33, *12*, *13*; 34, *6*, *7*; 3, *A*, *2*); spiral arm-rings consisting of a broad band with a mid-rib ending in spiral plates (figs. 32, *18*, *19*; 35, *A*, *1*; 35 *B*, *1*; pl. 14, *11*); spiral arm-rings made of a round wire (fig. 32, *20*, *21*); banded bracelets decorated with

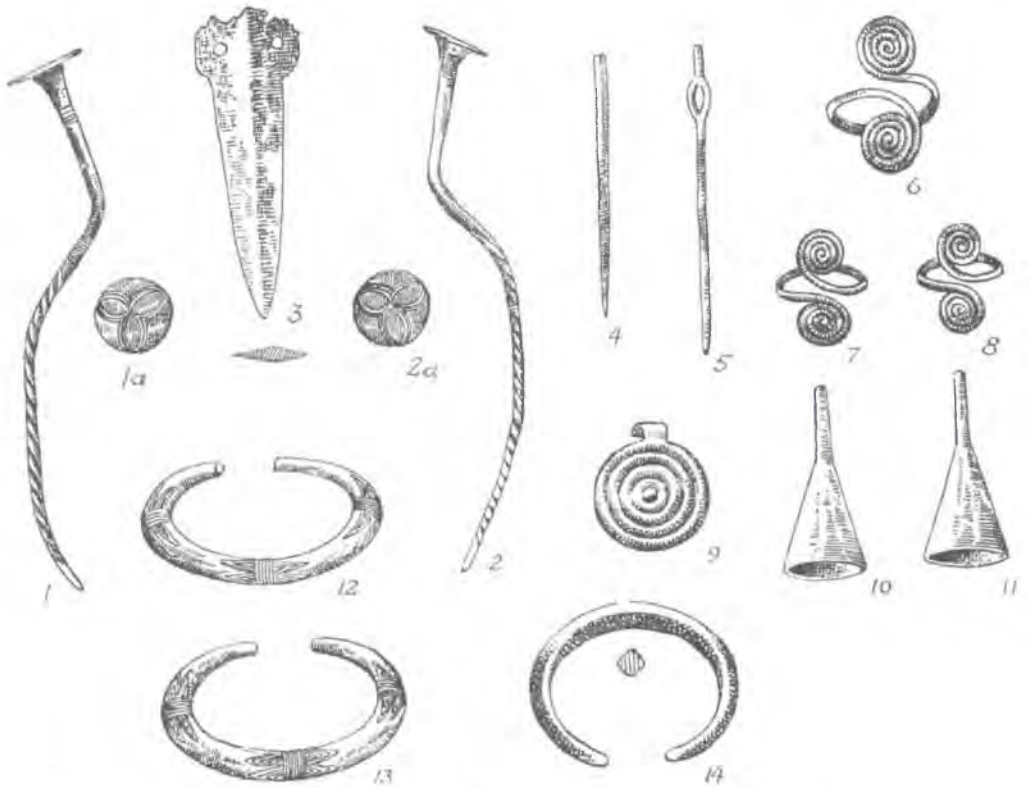


FIG. 33. Finds from the cemetery of Sv. Peter, western Slovakia. **1, 2,** "sickle pins" (**1***a* and **2***a*, ornamented tops of the heads); **3,** dagger blade; **4,** awl; **5,** needle; **6-8,** rings with spiral ends coiled in opposite directions; **9-11,** pendants; **12-14,** bracelets. Scale approx. 1/2. *By courtesy of the Archaeological Museum in Nitra, Slovakia.*

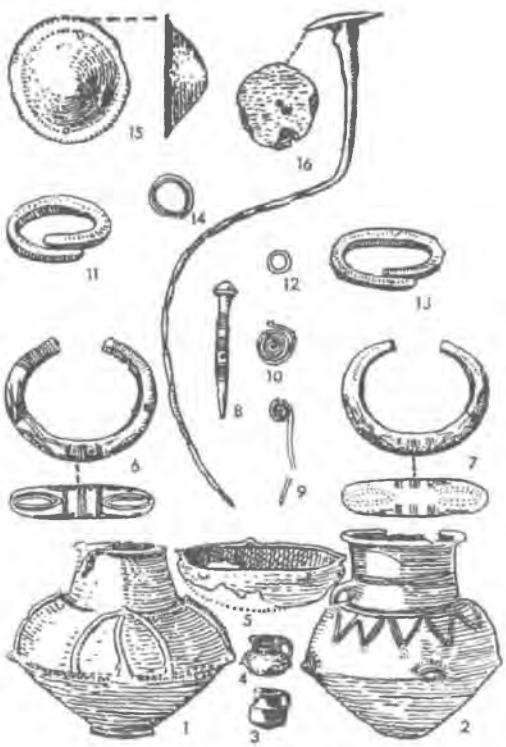


FIG. 34. Grave finds from Târgu-Mureş (Marosvásárhely), central Transylvania. **1-5,** pottery decorated with small bosses, ridged and incised ornament; **6, 7, 11, 13,** bracelets; **8, 9, 16,** pins; **10,** spiral plate from an ornament; **12, 14,** rings; **15,** ornamental plate. Scale: bronzes approx. 1/3; pots 1/6. *After* Roska, 1942.

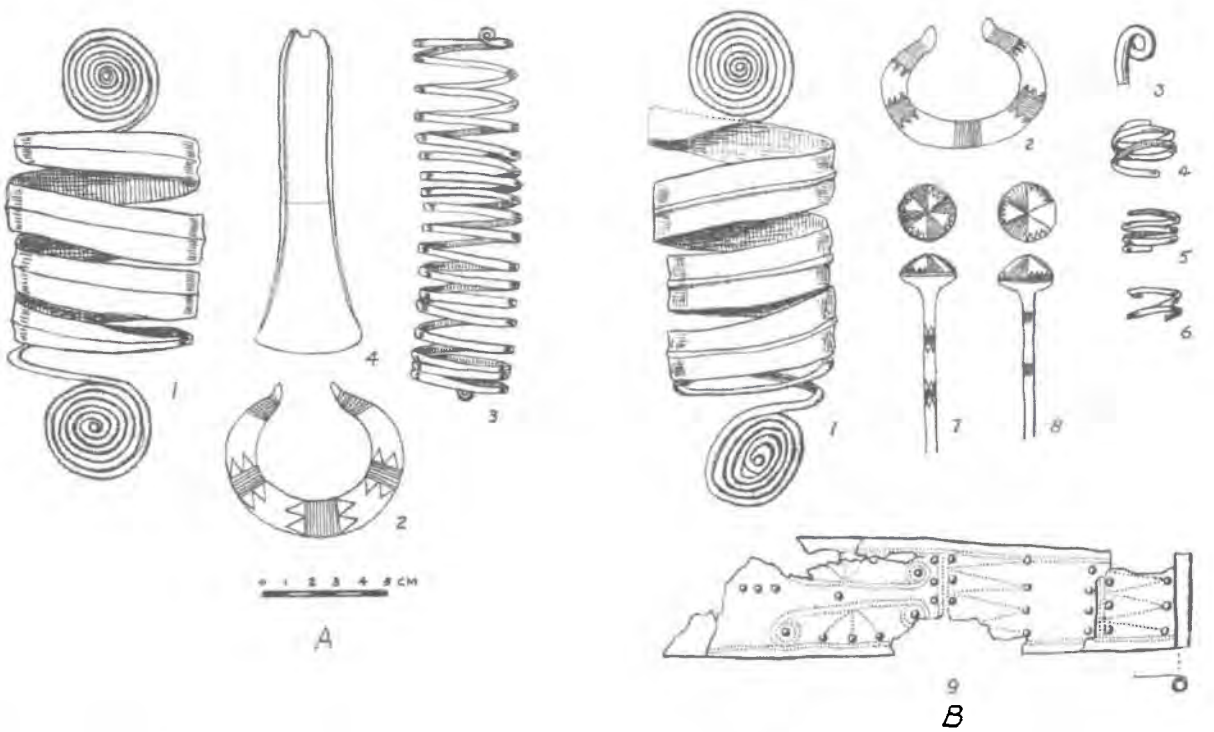


FIG. 35. "Koszider" bronzes in northern Poland. *A:* **1, 3,** spiral armbands; **2,** bracelet; **4,** flanged axe from the hoard of Grodnica. *B:* from grave No. 2 of the cemetery of Wojdal, lower Vistula, northern Poland: **1,** spiral arm-band; **2,** bracelet; **3,** pin with a small spiral head; **4-6,** spiral finger-rings; **7, 8,** pins with conical heads; **9,** belt plate. *After* Schultze, 1916.

horizontal ribbings (fig. 32, *23*); bracelets ending in spiral plates turned in opposite directions (fig. 32, *27*); finger-rings ending in spirals (fig. 33, *6-8*); spiral wrist-guards ending in a large spiral plate (figs. 32, *12, 13*); pins with rounded convex disc heads topped with a radial decoration and with a bent and twisted stem (so-called "sickle pins", figs. 32, *16, 17*; 33, *1, 2*; 34, *16*; pl. 14, *5*); pins topped with small discs or conical heads and a thin, usually twisted, stem (fig. 32, *15*; 34, *8*); ornamental circular pendants with a concentric ornament and the knob or cross motif in the middle (fig., 32, *28, 29*; 33, *9*; pl. 14, *3, 4*); pendants of the sacred ivy-leaf form (fig. 32, *30-37, 39, 40*; pl. 14, *1, 2*); tutulus-shaped (fig. 32, *38*), round (fig. 32, *41, 42*), and rectangular (fig. 32, *43*) ornamental plates; belt plates with embossed decoration (fig. 35, *B, 9*); flanged or socketed chisels; elongated narrow dagger blades with a trapeze-shaped butt (pl. 14, *19*; figs. 32, *3, 4*; 33, *3*); bronze-hilted daggers (figs. 32, *1, 2*); axes with low flanges (figs. 32, *6*; 35, *A, 4*; pl. 14, *17*); plain or button sickles (pl. 14, *7, 8, 10*; fig. 32, *10, 11*); socketed celts (fig. 32, *14*); and tanged sickles (pl. 14, *9*), which are the earliest socketed celts and tanged sickles in this part of Europe.

Outside the former Unětice distribution area and the adjacent southern and southeastern regions, bronzes of Koszider type are found in great numbers in the Baltic coastal area between the Oder River and the Vistula River, where the Baltic Early Bronze Age culture was spread. The outstanding hoards are Grodnica (fig. 35, *A*), Kurcewo (Krüssow) near Pyrzyce (Kersten, 1958, pl. 66, No. 646), Smogolice (Bruchhausen) near Saatzig (Kersten, 1958, pl. 72), and Rościęcino near Kołobrzeg (fig. 262). In one of the graves from the cemetery of Wojdal, in the lower Vistula area, which belongs to the Baltic culture of late Iwno phase, a spiral armband (fig. 35, *B, 1*), and a massive bracelet (fig. 35, *B, 2*) lay together with pins having conical heads decorated in a manner similar to the bracelets, with zigzags and clusters of striations (fig. 35, *B, 7, 8*); a pin with a small spiral head (fig. 35, *B, 3*); spiral finger-rings (fig. 35, *B, 4-6*); a

fragment of a belt plate made of a broad bronze band decorated with pointillé and embossed ornamentation (fig. 34, *B*, *9*); and some large, undecorated, wide-mouthed pots.

North of the Carpathians, in Galicia, in the basins of the upper Dniester and the San, a tributary of the upper Vistula, battle-axes, spiral wrist-guards, massive bracelets with tapered ends, spiral pendants, and tutuli are known from many hoards and graves (Kostrzewski, 1918). The rich graves of the upper Dniester area, like those of the Komarov cemetery, contained gold and bronze ornaments : bronze pins with flat button-heads and twisted stems (fig. 307, *1*), massive bracelets with tapered ends decorated with zigzags and striations (fig. 307, *3*), bronze neck-rings with the two ends spiraled in opposite directions (fig. 307, *2*), double-spiral pendants, tutuli, and pendants with broad and hollow overlapping ends, made of gold (fig. 307, *5*, *6*).

Tumulus influence reached as far east as the lower Dnieper area and the Sea of Azov. Finds of Koszider type are known from the shores of the Sea of Azov, district of Melitopol', and from the Kiev area (fig. 36). The hoard found on the lower Southern Bug, at Nikolaev, western Ukraine, contained an

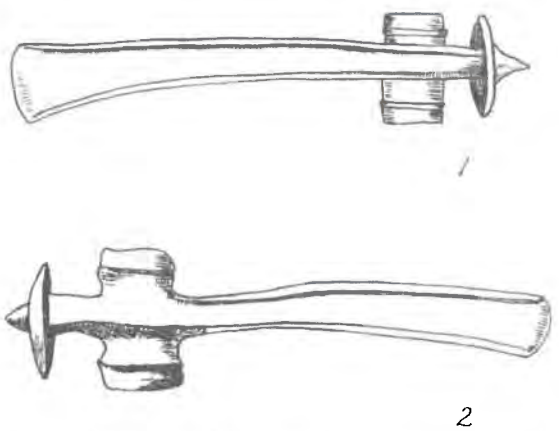


FIG. 36. "Hungarian" battle-axes from the western Ukraine. **1**, Orlovo, district of Melitopol'; **2**, Museum of Kiev Scale 1/3. *After* Tallgren, 1926b.

axe with a flat conical butt-end and a short shaft-tube (fig. 37, *1*), an early type of flame-shaped spearhead (fig. 37, *12*), fragments of button and tanged sickles (fig. 37, *2*, *3*, *10*), part of the blade of a curved sword (fig. 37, *9*), a belt hook (fig. 37, *11*), two bracelets with tapered ends and projections (fig. 37, *7*, *8*), and several other uncertain objects (fig. 37, *4-6*). The fragment of a sword with a curved end from Nikolaev has parallels in southern Scandinavia. Specifically, swords from Norre, Östergötland, southern Sweden, S. Åby in Scåne, and Rørby, Zealand share the characteristics of the Nikolaev fragment (Lomborg, 1959, Abb. 32, and Mathiassen, 1957). Swords with curved ends also find parallels in Anatolia. The famous Hittite warrior sculptured in relief on one of the monolith door jambs at the King's Gate in the enclosure wall of Boghazköy is equipped with a sword which has a curved end and a crescent shaped hilt; he also bears a battle-axe of Luristan type and a helmet with an extension down the back (Ankara Museum). Boghazköy was founded by Hattusilis I around 1500 B.C., but its vast fortifications were extended under Suppiluliumas in the early fourteenth century B.C. Hence the warrior probably dates from the reign of Suppiluliumas. Here we have chronological and typological tie between the central European early Middle Bronze Age and the flourishing Hittite Empire.

Characteristic of this period are swords of Sauerbrunn type. They had a flaring in the upper part of the blade, ornamented on both sides with three or four parallel lines incised symmetrically and ending over the hand guard in an oval or semicircular band filled in with striations or other geometric motifs (fig. 38). They had no tangs or flanged hilts as did their successors, the swords of Keszthely type (cf. fig. 187, *4*, *5*), but were fastened to the wooden hilts by six to ten rivets. The length of the blade is usually

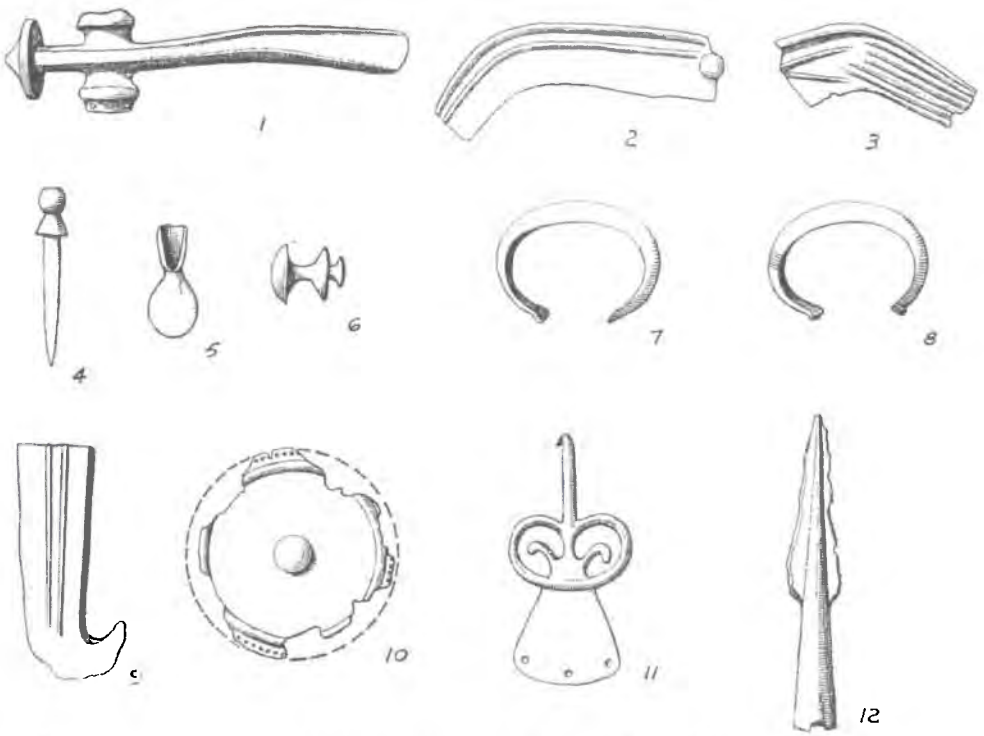


FIG. 37. The Nikolaev hoard, western Ukraine. **1,** "Hungarian" battle-axe; **2, 3,** fragments of sickles; **4-6,** uncertain objects; **7-8,** bracelets; **9,** part of the blade of a curved sword; **10,** convex ornamental plate; **11,** belt hook; **12,** spearhead. *After* Tallgren, 1926b.



FIG. 38. Sword of Sauerbrunn type. Sauerbrunn cemetery, lower Austria. Scale approx. 1/3. *After* Willvonseder, 1937.

between 45 and 65 cm. In the cemeteries of Sauerbrunn and Leobersdorf near Vienna these swords were found in association with Koszider bronzes (Willvonseder, 1937, pls. 26, 28). The largest number of Sauerbrunn swords is known from Austria, chiefly east of the Alps around Vienna. The Danube plain between the eastern Alps and western Carpathians very probably was their production center. From there they spread south to northeastern Italy, where a considerable number were found around Treviso, north of the Adriatic Sea, as recently brought to light by Foltiny (Foltiny, 1961, Abb. 1). All swords in northeastern Italy are unfortunately isolated finds. Whether these swords reached the Adriatic coasts as a result of trade or of warlike undertakings, the future finds may show.

The continuity of amber and faïence trade during this phase is shown by the presence of amber beads in the hoards of Dunapentele-Kosziderpadlás I (pl. 14, *14-16*), and in the hoard of Barca near Košice, Slovakia, found in Layer I, 2.

Koszider bronzes showing identity or great similarity in style must belong to a single phase. It succeeds late Únětice or A_2, but not immediately. There was another sub-phase indicated by stratigraphy in the habitation site of western Slovakia, called post-Mad'arovce or proto-Tumulus, since it followed the classical Mad'arovce (further information is in the chapter on central Europe, p. 274). In this post-Mad'arovce stratum bronze pins and pottery appeared which stylistically are proto-Koszider in character (fig. 183). Finds of the same type are known also from cemeteries and hoards in western Slovakia, Moravia, Bohemia, and the whole Únětician area. Pins had semiglobular heads with a perforation (fig. 184, *5*), small globular (fig. 183, *1*), biconical (fig. 183, *2*), or conical heads (fig. 184, *1-3*), and had curved shanks decorated on the neck with clusters of striations and zigzags. Pots with cylindrical necks were decorated with small sharp warts. Hence, stratigraphy and typology speak for a certain interval between late Únětice and Koszider. If the end of late Únětice is relatively dated to about 1450 B.C. on the basis of analogies with Mycenaean II, the proto or early Koszider should be placed in the second half of the fifteenth century B.C. This sub-phase was closed by great expansion which naturally caused changes and inventions of new forms. The birth of Koszider forms and beginning of their wide dispersion can be relatively dated with the end of the fifteenth century B.C. or around 1400 B.C.

b. *Middle Tumulus or Třebivlice horizon*

The birth of flange-hilted swords, rapiers, and bronze arrowheads and the slightly changed forms of battle-axes, bronze-hilted swords, pins, and bracelets denote the beginning of another phase. Since one of the best collections of the diagnostic finds appeared in the grave of the cemetery of Třebivlice in Bohemia (fig. 40), its name can be used as a label.

Influence from and commercial and possibly warlike relations with Mycenaean Greece of Late Helladic III A period place it in the fourteenth century B.C. The persistence of many forms from the Koszider horizon shows that the transition was rather fast. The hoard of Zájta in northeastern Hungary (fig. 39) seems to stand in the beginning of the series. Its collection of bronzes includes "Hungarian" battle-axes with a short biconical shaft-tube and a flat conical butt-end (fig. 39, *7, 8*) of the same form as those known from the Koszider phase (fig. 32, *8*), in addition to the axe with a cylindrical shaft-tube, disc-shaped butt-end with a spike and a longer and slightly curved blade (fig. 39, *6*), which is diagnostic for the Třebivlice phase. The wrist-guard having a large spiraled disc (fig. 39, *4*) is also of the same form as in Koszider (fig. 32, *12, 13*); so is the bronze-hilted dagger (fig. 39, *5* and cf. dagger from Koszider: fig. 32, *2*). The geometric decoration on bronze hilts and blades of the short swords (fig. 39, *1-3*) is closely related to geometric motifs on swords, battle-axes (cf. fig. 32, *9*), and other objects of the Koszider type.

Central European sword blades with a flaring in the upper part of the blade continued their existence, but to their hand-guard a tang was added which finally developed into a flanged hilt. The Sauerbrunn

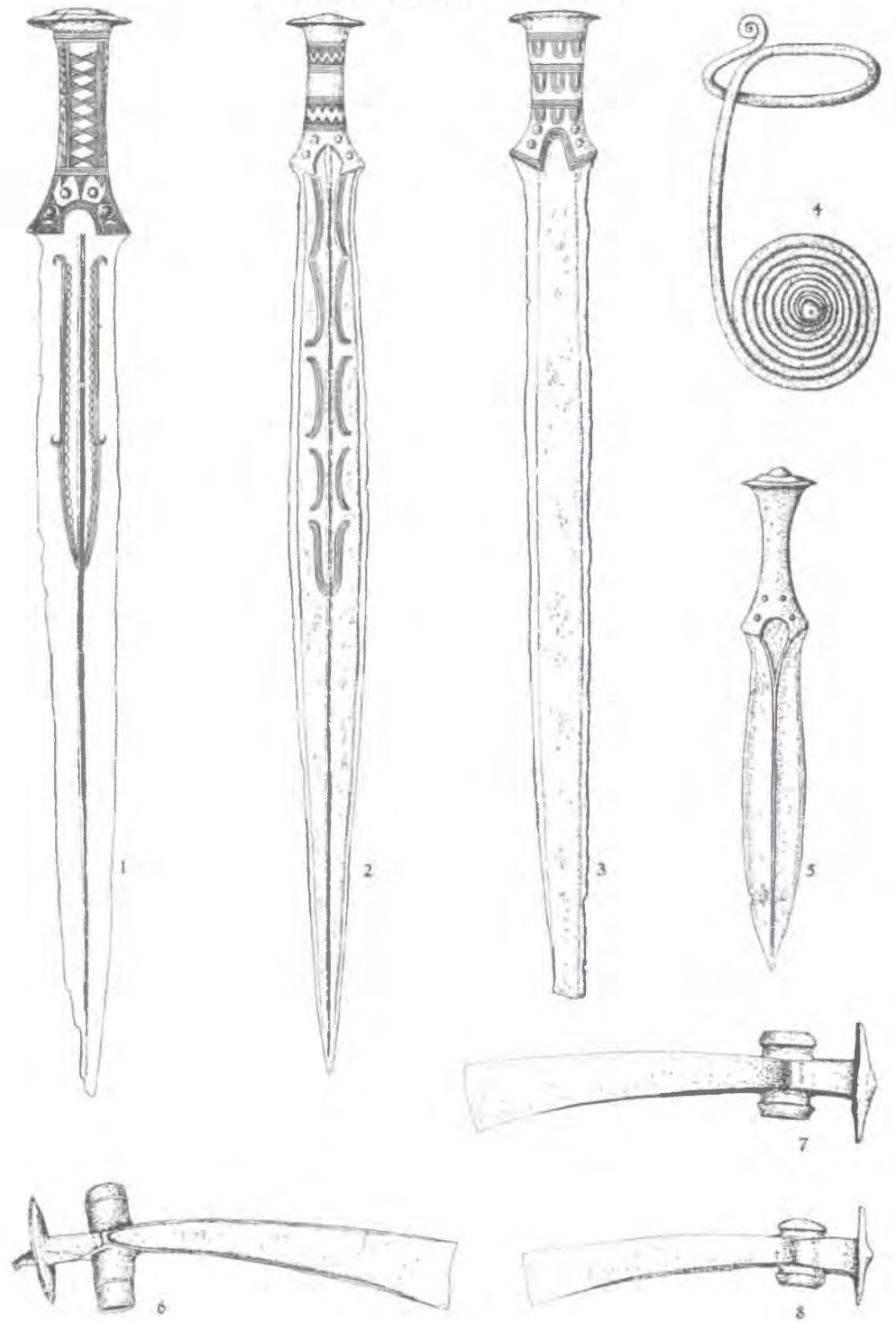


FIG. 39. The hoard of Zájta, northeastern Hungary. **1-3,** bronze-hilted swords; **4,** spiral wrist-guards; **5,** bronze-hilted dagger; **6-8,** "Hungarian" battle-axes. Scale approx. 1/3.
After Hachmann, 1957*b*.

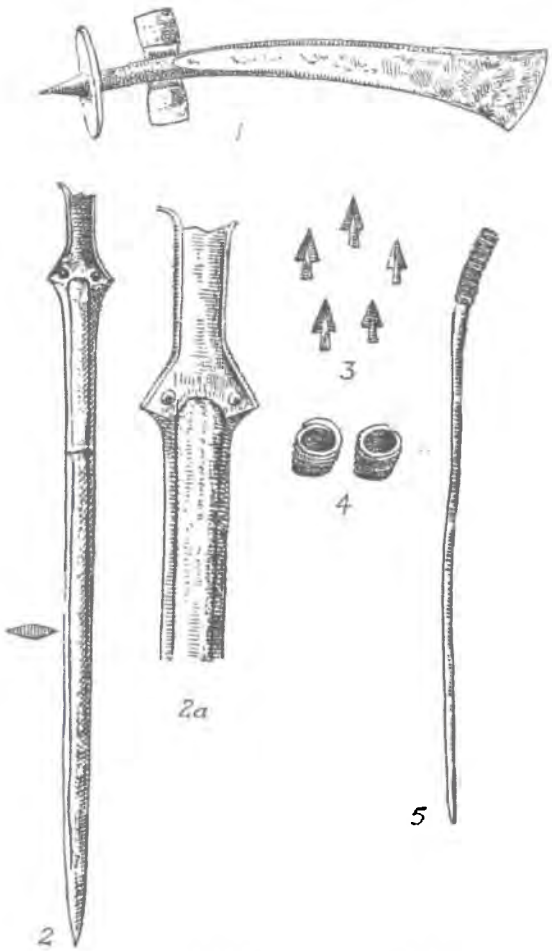


FIG. 40. Grave inventory from the cemetery of Třebivlice near Litoměrice, Bohemia. **1**, "Hungarian" battle-axe; **2**, flange-hilted sword; **2***a*, the upper part of the sword; **3**, bronze arrowheads; **4**, spiral rings; **5**, pin with slightly ribbed head. Scale: **1**, **3-5** approx. 1/3, **2** approx. 1/7. *After* Böhm, 1937.

sword (fig. 38) became now a sword of "Keszthely" type, named so after the find in the grave of Keszthely at Lake Balaton in western Hungary (fig. 187, *4*) or "Boiu" type, named after an isolated find in Transylvania. The chronological position of these swords is best indicated by the sword of Keszthely, found in association with a pin having a small disc head and decorated with horizontal striations over the upper part (fig. 187, *3*). Such a pin was also in the grave inventory of Smolenice (Szomolány), near Bratislava in Slovakia (fig. 41, *2*), together with a straight-bladed flange-hilted sword (fig. 41, *1*), and other finds. These pins are not known in the repertory of Koszider bronzes. The swords of Keszthely type were widely spread between Transylvania, Italy, and Denmark, their largest numbers coming from the middle Danube area, and the River Save, Tisza, and Mureş basins (Foltiny, 1961). In northeastern Italy, many copies were discovered around Treviso (Foltiny, 1961). One flange-hilted Keszthely sword comes even from the area of Taranto in Apulia (information by Dr. Foltiny; the sword was found in 1891 and is in the Ashmolean Museum).

The Keszthely and Smolenice grave inventories show that while the Keszthely swords were being produced, the flange-hilted swords having straight blades appeared, starting the new series of swords, the most popular throughout the rest of the Bronze Age of central Europe. The Keszthely swords and a straight-bladed, flange-hilted sword closely related to Třebivlice type (fig. 40, *2*) appeared in the cemetery of Gambaloni at Povegliano, in the basin of the Piave River north of Treviso, northeastern Italy (Batta-

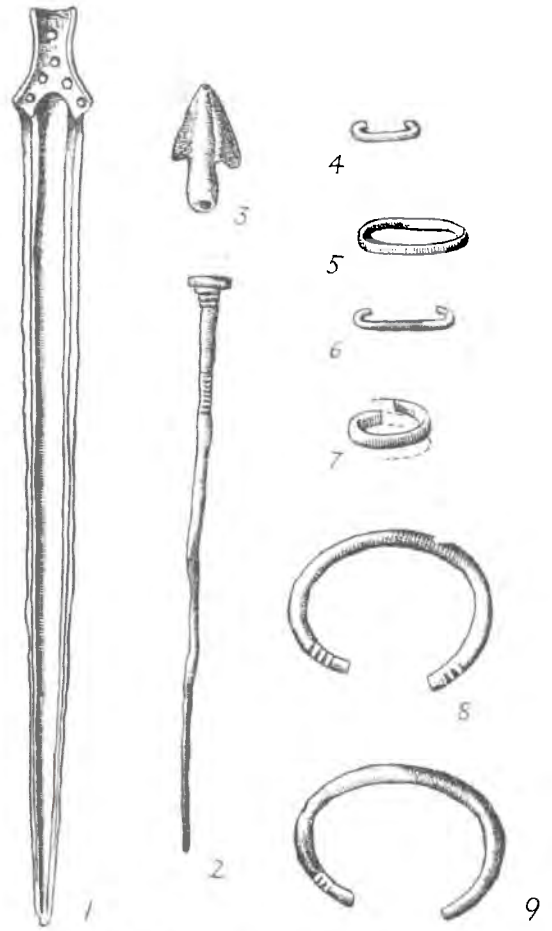


FIG. 41. Grave inventory from the cemetery of Smolenice (Szomolány), Slovakia. **1**, sword; **2**, pin; **3**, bronze arrowhead; **4-7**, finger-rings; **8, 9**, bracelets. Scale: **1** approx. 1/4, **2, 3, 8, 9** 1/2, **4-7** 1/1.

glia, 1958-59, p. 295, fig. 106). Bronzes of a later period than Trebivlice have not been found in this cemetery. Some of the Gambaloni swords had only hand-guards and no hilts, which indicates their relationship to the Sauerbrunn sword, but even these, except two, had straight blades without decoration, just like the flange-hilted sword of Trebivlice type.

The earliest straight-bladed swords are known as "type Ib," according to the classification of Sprockhoff (Sprockhoff, 1931; Cowen, 1956, pl. 4, *61-63*: distribution map: Cowen, 1956, p. 57). Their usual length is between 60 and 70 cm., the blade is straight and convex and has an elliptical section. The straight hilt consists of a pommel, usually made up of two "ears", a flanged handgrip, and a hand-guard with evenly sloping shoulders. This kind of sword was named "type Ib" instead of "type Ia" because they were assumed to belong to Reinecke's Phase C. This assumption was wrong. Their appearance in grave contexts indicates a considerably earlier date. In the cemetery of Trebivlice near Litomerice, Bohemia, this type of sword (fig. 40, *2*) was discovered in an inhumation grave together with a "Hungarian" battle-axe with a narrow and slightly curved blade and a cylindrical shaft-tube (fig. 40, *1*), small bronze arrowheads (fig. 40, *3*), spiral rings (fig. 40, *4*), and a pin with a slightly ribbed head (fig. 40, *5*). The Trebivlice axe has close parallels in the hoards of Zájta, Hungary (fig. 39, *6*), and Redzikowo (Reitz), district of Słupia, in eastern Pomerania (fig. 263, *3*). The other finds which accompany "Hungarian" battle-axes in the hoard of Redzikowo and Zájta can by no means be attributed to Phase C, but undoubtedly belong to B_2. In the cemetery of Asenkofen in upper Bavaria, a sword of Trebivlice type was also found in association with a pin having a slightly ribbed head, two bracelets, and a knife blade

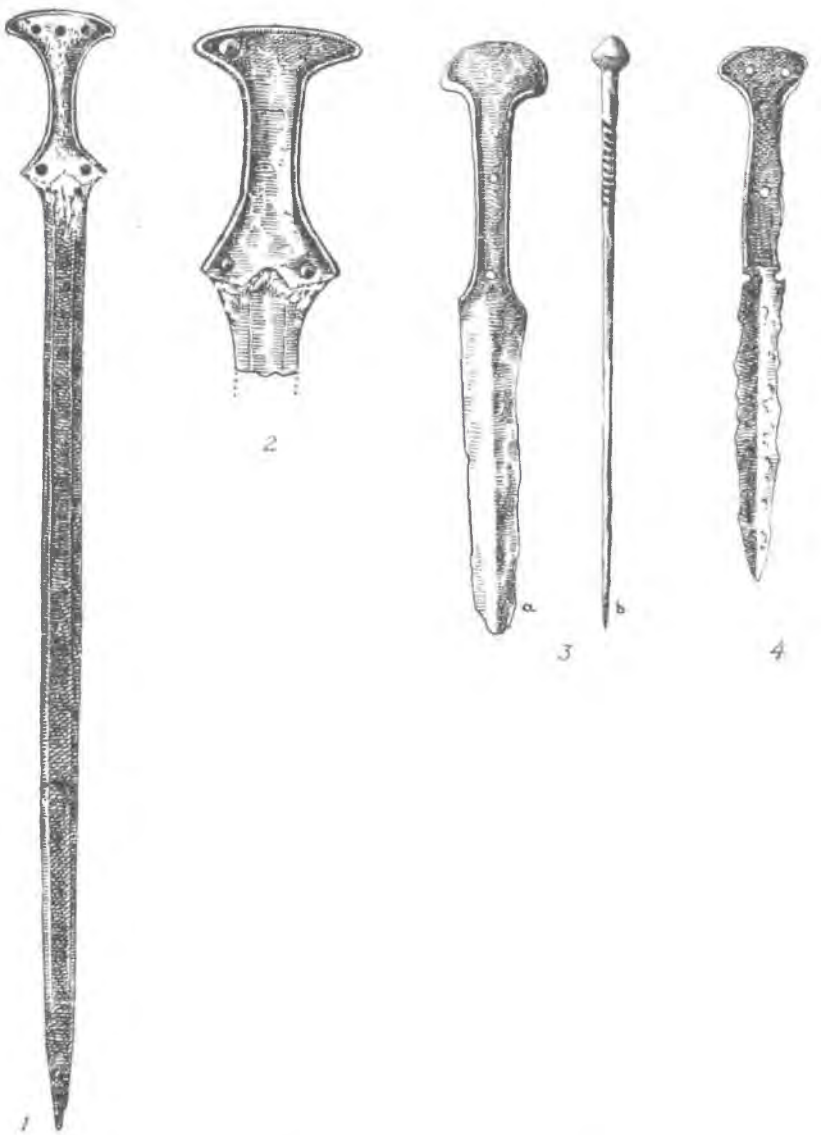


FIG. 42. Swords and daggers with T-shaped grips. **1**, Hammer near Nürnberg; **2**, Dollerup, Jutland; **3**, *a* and *b*, dagger in association with a pin Velká Lehota, district of Prievidza, Slovakia; **4**, Hungary. Scale: **1** approx. 1/3; **2-4** approx. 1/2. *After* Reinecke, 1911 **(1)**; Broholm, 1944 **(2)**; and Hampel, 1896 **(3, 4)**.

(Sprockhoff, 1931, pl. 62, *1128-1131*; Cowen 1956, pl. 18, *1*). Another pin with a slightly ribbed head was found in a grave of the cemetery of Tachlovice, Bohemia, together with a battle-axe of Zájta (fig. 39,*6*) and Trebivlice (fig. 40, *1*) type, bracelets of Smolenice type (fig. 41, *8*), a bronze-hilted sword decorated with rows of circles and semicircles over the hand-guard and pommel, pins with small spiral heads and a dagger blade with two rivet holes (Felcman, 1898; Lomborg, 1959, p. 80, Abb. 11). The interrelated grave inventories from Trebivlice, Smolenice, Asenkofen, Tachlovice, and Keszthely undoubtedly belong to one time horizon. Further interrelations of grave and hoard inventories allow us to add to the list of bronzes in the Trebivlice horizon the following objects: rapiers having two large rivets (pl. 15, *1*), finger-rings wound of double wire (pl. 15, *3*, *4*, *9*), bracelets with tapered ends (pl. 15, *2*), working axes with low flanges and a tang (pl. 15, *5*), and pins with disc heads and a perforation in the neck (pl. 15, *6*). The above mentioned types come from the tumulus in the cemetery of Malnice near Louny in Bohemia (pl. 15).

Swords of similar appearance, but with a T-shaped grip, belong to the same phase, as shown by a sword found in the cemetery at Hammer near Nürnberg (fig. 42, *1*), together with a pin having a ribbed head, like those from Třebivlice and Asenkofen. Another sword with a T-shaped grip, identical to that of Hammer, was discovered in an inhumation double-grave in a tree-trunk coffin of the Dollerup barrow near Geslum, northern Jutland (fig. 42, *2*). In addition to the sword, the Dollerup grave contained a razor, a fragment of an ornamented belt plate with a tutulus in the middle, a finger-ring, and an awl (Lomborg, 1959, p. 137, Abb. 38). These finds belong to Period II of the Northern Area Bronze Age (in the schemes of Broholm, Hachmann, and Lomborg). A number of flange-hilted daggers with T-shaped grips are reported from Hungary and Slovakia (Hampel, 1896, p. 75; Eisner, 1933, fig. 7, *2*, *3*). Typologically they must belong to the same group as Hammer and Dollerup swords (fig. 42, *1*, 2). The flange-hilted dagger with T-shaped grip from the site of Velká Lehota, district of Prievidza, Slovakia, was found in association with a pin having a conical head and a slightly ribbed stem (fig. 42, *3*, *b*).

The T-shaped grip suggests Mycenaean influences. A large number of daggers with T-shaped and flanged grips are known from Greece and Crete. In Greece T-shaped grips do not appear earlier than 1400 B.C. (Furumark, 1941, p. 93). Quite close parallels come from Mycenae: a flange-hilted dagger or short sword 32.5 cm long and soldered in the middle with a blade having almost parallel sides and a T-shaped grip was found by Schliemann in Mycenae in the center of the Agora immediately to the north of the Third Tomb. It lay together with Hera-idols, whorls, and other objects (Schliemann, 1878, p. 164). A similar dagger appeared in a hoard of bronzes found by Tsountas in 1890 (Tsountas, 1897, p. 110) on the Athenian Acropolis (fig. 43, *1*) and further parallels are known from the Late Helladic III A tombs of Prosymna. Tombs XXV and XLII yielded daggers with T-shaped grips, flanged hilts, and rather broad blades (fig. 43, *3*). In Tomb XXV the dagger with a T-shaped grip was in association with the sword or rapier of so-called cruciform shape (fig. 43, *4*). The same type of dagger with T-shaped grip is known from Zafer Papoura, Crete (fig. 43, *2*). The above analogies show that the development of the Hammer type swords with T-shaped grips in central Europe was very probably inspired from the south.

Since swords with T-shaped grips and those of Třebivlice type belong in central Europe to the same time horizon, the appearance of both types can be considered as stimulated to a certain degree by the Mycenaean examples. The middle of the fourteenth century B.C. is a probable date for their appearance. The central European Hammer and Třebivlice swords are, however, not imports and not copies of the Mycenaean or Minoan swords. The production of swords in central Europe had its own traditions for more than a century before the flange-hilted swords appeared. The new form was merely an improvement and simplification of the current sword types. The new series ran parallel to Keszthely type and bronze-hilted swords.

Commercial relations with the south, with Greece and Italy, are witnessed by amber beads. Spherical amber beads abundantly appear during the Late Helladic III A, many of them were in the cemetery of Prosymna (Blegen, 1937b). In eastern Sicily, amber beads were found in one grave of the cemetery of Plemmirion together with Mycenaean swords and Late Helladic III A pottery (Archaeological Museum of Syracuse). In northeastern Italy at Povegliano, in the cemetery of Gambaloni amber beads were discovered associated with swords of Keszthely and Třebivlice types (Battaglia, 1958-59, p. 296, fig. 107).

A Mycenaean bronze cup discovered at Dohnsen near Celle north of Hannover in 1955 (Sprockhoff, 1961) is another witness to widespread trade with the south. The cup is related to the gold cups of the Shaft-grave V of Mycenae, of the tholos tomb of Marathon and of the grave of Ayios Joannis near Knossos in Crete. In Hood's opinion, the cup from Dohnsen may date from around 1400 B.C. or later (Sprockhoff, 1961, p. 15).

If we move now to eastern central Europe and the Balkans north of Greece, we find even more objects of Aegean origin: long and narrow swords or rapiers from Slovakia, Rumania, southern Yugoslavia and Bulgaria, and spearheads from Bulgaria, which very probably date from the early fourteenth

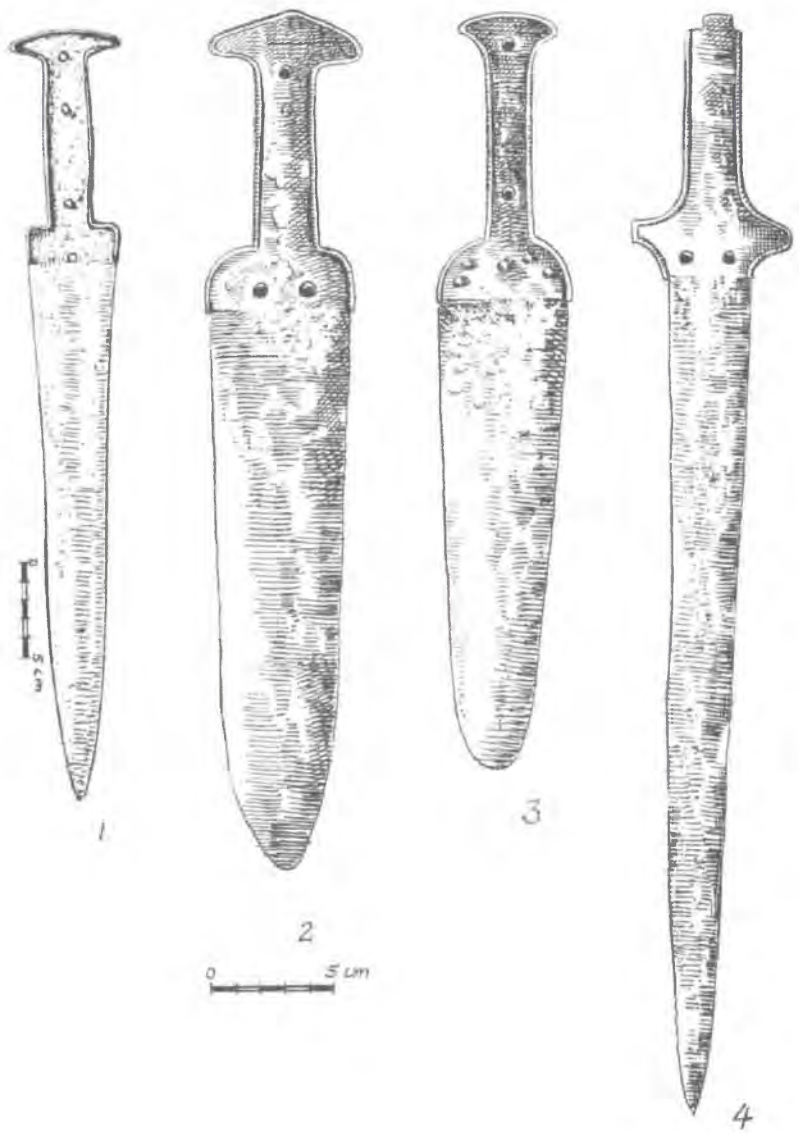


FIG. 43. Mycenaean and Minoan daggers with a T-shaped and cross-shaped grips. **1,** Mycenae Acropolis, Greece; **2,** Zafer Papoura, Crete; **3, 4,** Prosymna (Tomb XXV), Greece. *After* Schliemann, 1878 **(1)**; Benton, 1953 **(2)**; and Blegen, 1937b **(3, 4)**.

century B.C. or from the period between the end of the fifteenth and the middle of the fourteenth centuries B.C.

The swords belong to the "horned" type, which in the recent study by Sandars are classed as "group C" in the series of Aegean swords (Sandars, 1963). In the Aegean area they started as luxury weapons produced in one center *ca.* 1450-1400 B.C. and later on were probably imitated by other workshops, as their more variable forms indicate. Many of the swords had seen heavy use and, except those from Yugoslavia and Bulgaria, have lost their hilts and horns. However, they are absolutely foreign to Europe and their Aegean origin cannot be doubted. Those which have hilts indicate that they were of flanged and riveted type (Sandars' Group C_1) and have close analogies to two Perámatos swords at Ioannina, Epirus (fig. 44, *1*, *2*) as well as to one found in the chamber tomb at Mycenae (Sandars, 1963, pl. 21, *2*). A spatial link between Greece and eastern central Europe is provided by a sword found at Tetovo west of Skopje on the upper Vardar River in southern Yugoslavia, not far from the watershed of

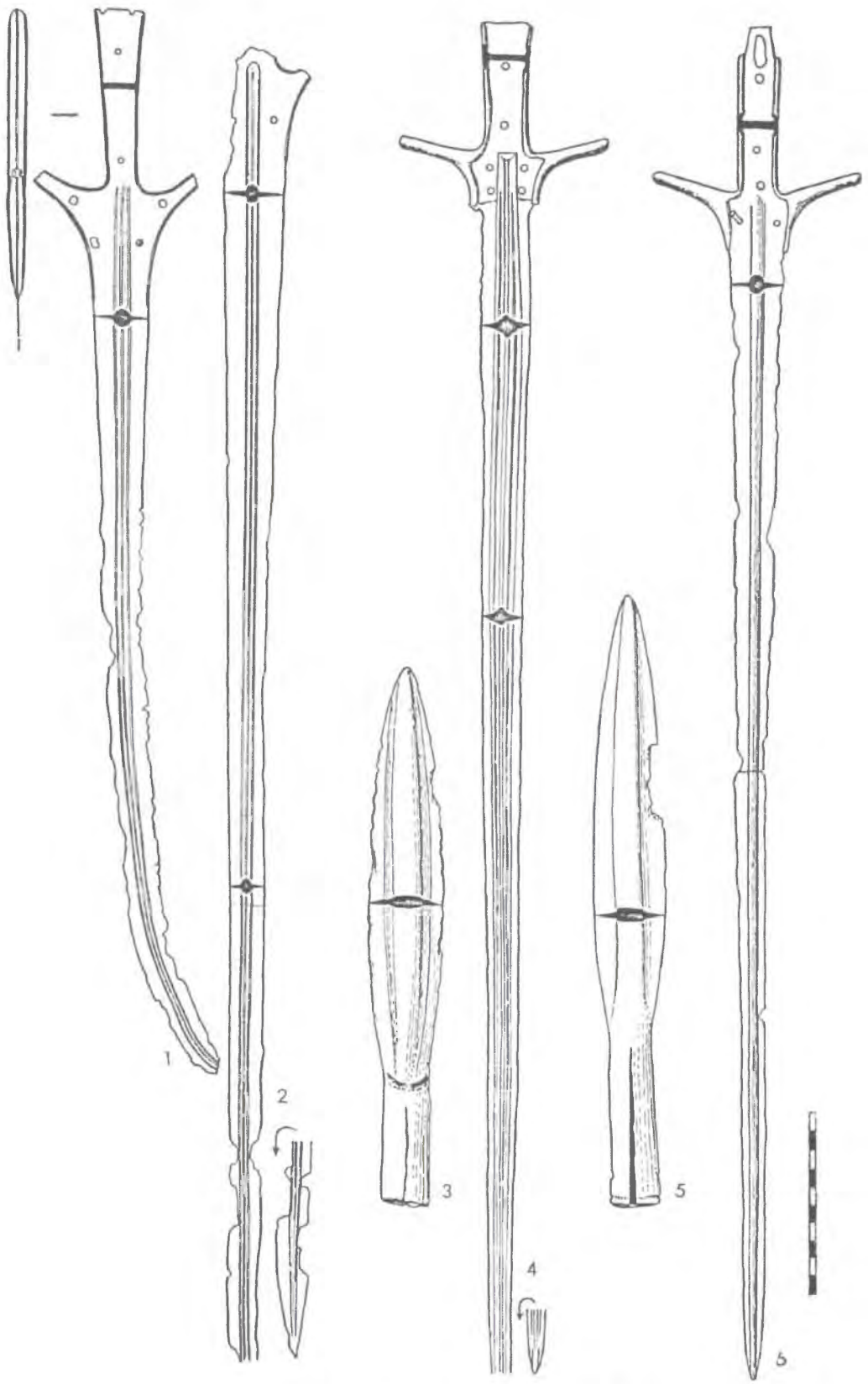


FIG. 44. Aegean swords and spearheads from Epirus (Greece) and Bulgaria. **1, 2,** Perámatos at Ioannina; **3, 4,** Dolnolevskij, central southern Bulgaria; **5, 6,** Perushtitsa near Plovdiv, Bulgaria. *After* Sandars, 1963.

the Danubian river system. The copy from Tetovo shares the peculiarities of the Perámatos swords (Sandars, 1963, p. 120).

The Aegean swords may have been imported to Rumania by the Otomani, Tei, and Monteoru people. Their date seems to be coincident with the expansion of the central European Tumulus people, and they could have been used as efficient weapons against the invaders. One of the swords was found as far north as St. Georgen near Bratislava (north of Vienna) in Slovakia (Nemzeti Museum, Budapest; information by Dr. Foltiny).

The greatest number is known from central Transylvania. Swords, unfortunately all isolated finds, come from the following places in Rumania: Alba Julia near Alba in the district of Hunedoara; Alma and Copşa Mare near Mediaş, district of Braşov; Aluniş and Inlăceni in the district of Odorhei; Dumbrăvioara in the district of Tîrgu-Mureş; Mercurea in the district of Sebeş; and Roşiori-de-Vede, southwest of Bucharest (Dumitrescu, 1938; Sandars, 1961; Horedt, 1961). A fragment of a badly worn sword was found in the cemetery of Poiana of the Monteoru culture (see: Monteoru culture).

The swords found in Bulgaria are Aegean models of horned type, but with horns cast solid. In Bulgaria four are known: from the vicinity of Kŭstendil, southwest Bulgaria (lost); Mikhailovgrad, southwest Bulgaria (Archaeological Museum in Sofia); Dolnolevskij, district of Panegŭrishte, central south Bulgaria (fig. 44, *4*; Archaeological Museum in Sofia), found in association with a socketed spearhead (fig. 44, *3*); and Perushtitsa near Plovdiv (fig. 44, *6*), in association with a Mycenaean spearhead (fig. 44, *5*; in the Archaeological Museum of Plovdiv). In addition to the spearheads of Mycenaean type found in Dolnolevskij and Perushtitsa, two others are known in Bulgaria: one from Krasnogradishte, district of Tŭrnovo (Archaeological Museum in Sofia), the other from Kritchim near Plovdiv (Archaeological Museum in Plovdiv).

c *Conclusions*

The wide distribution of central European Koszider and Třebivlice bronzes allows us to trace the following groups as contemporary:

Central Europe: early Tumulus culture in southern Germany, Austria, Switzerland, and western Czechoslovakia. Earliest or proto-Lusatian group in eastern Germany and western Poland, which is very closely related to the Tumulus culture. Following the old classifications of central European bronzes it can be labeled Phase B, its earlier horizon or Phase B_1 being characterized by bronzes of Koszider type (fig. 32; pl. 14) and its later horizon or Phase B_2 by bronzes of Třebivlice type (fig. 40).

Ties with Late Helladic III A indicate the middle part of the fourteenth century B.C. for the date of the Třebivlice horizon. The tentative date for the expansion of the central European Únětice-Tumulus people and the catastrophe for the east central European cultures should be either in the last quarter of the fifteenth century or *ca.* 1400 B.C., and the wide distribution of the Koszider bronzes immediately succeeds the expansion.

Eastern central Europe: the period of mixture of local cultural elements (Incrusted Pottery, Vatya late Pecica, Otomani, Wietenberg) with the intrusive Tumulus elements. The end of large east Hungarian and west Rumanian tells (Tószeg D in the stratified tell of northern Hungary).

North Carpathian culture of the Komarov phase.

Baltic culture of the period of Tumulus influence; late Iwno in the lower Vistula area and Trzciniec in eastern Poland.

Northern Area culture in northwestern Germany and southern Scandinavia of Period I (end) and II in Montelius scheme; of the end of "earliest metal culture" and of Period I in the classification by Broholm, and in Hachmann's classification of the horizons III and IV.

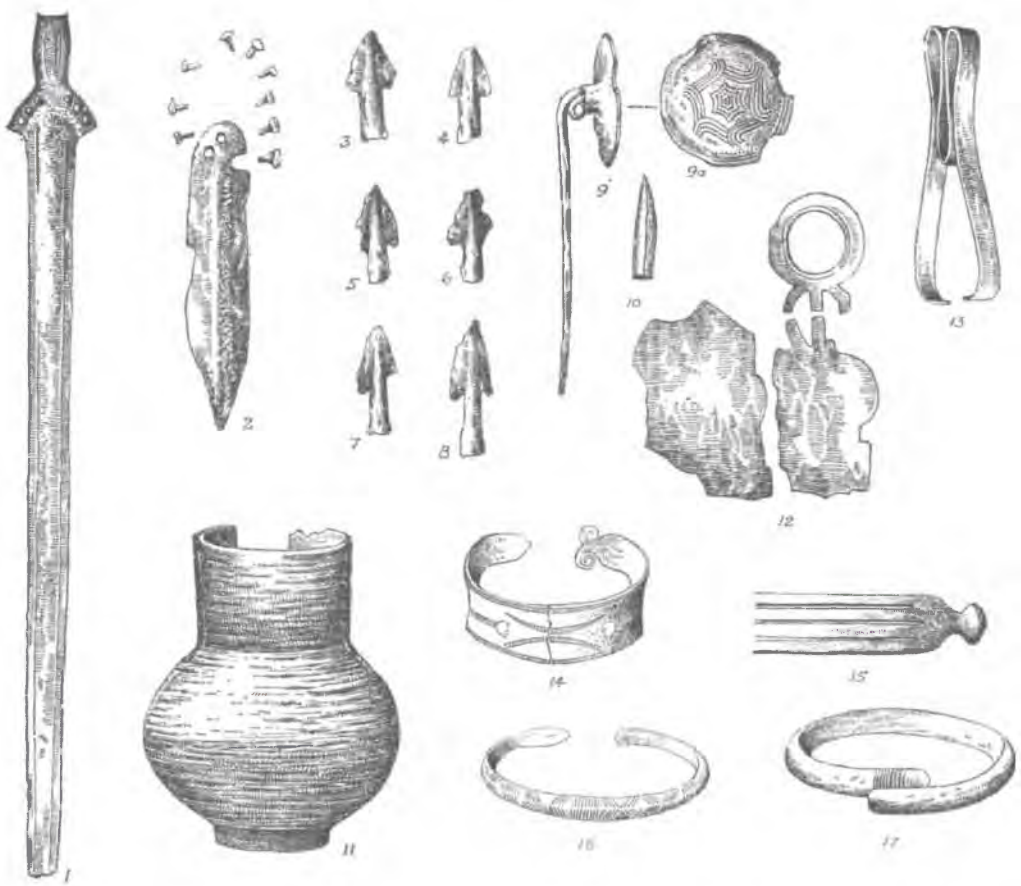


FIG. 45. Finds from the cemetery of Houštka. **1,** flange-hilted sword; **2,** dagger and rivets; **3-8,** arrowheads; **9,** disc-headed pin with an ear; **10,** tutulus made of bronze plate; **11,** pot; **12,** double-edged razor; **13,** M-shaped tweezers; **14-17,** bracelets. Scale: **1,** approx. 1/5; **3-8, 14-17,** 1/2; **2, 9, 10, 12, 13,** 2/5; **11,** 1/3. *After* Stocky, 1928.

2. *The period of differentiation typified by regional bronze forms, ca. 1325/1300 – ca. 1250 B.C.; late Tumulus phase*

During this phase the trend toward individualization of forms of artifacts is evident in every cultural group of central and northern Europe. There are not many finds common to more than one area which are diagnostic for chronology. The predominant ornament was the pin, and in separate cultural groups there appeared a considerable number of types and their variants. Their distribution, however, usually covers one cultural group and only rarely do they spread to neighboring groups. Pins were not for export, but rather were a national ornament.

New pin types appeared: those with swollen and geometrically decorated necks with perforations or without, and those with wheel-shaped or solar ring heads typical of the Tumulus culture in southern Germany, Austria, and Switzerland. Pins with a bent disc head and usually with a small ear at the bend became a distinctive type in the early Lusatian culture (figs. 45, *9*; 46, *1, 13*). Decoration with a star pattern on the disc and with clusters of striations on the neck became dominant. Bracelets were now not so massive as during the preceding phase and, more frequently, were banded or triangular in cross-section (fig. 45, *14-17*). Arm-rings and neck-rings ending in spirals coiled in opposite directions were still in fashion, particularly in the Tumulus and North Carpathian cultures (fig. 46, *8, 9*). Sacred ivy-leaf and circular pendants with a concentric decoration and a spike in the middle, and "Hungarian"

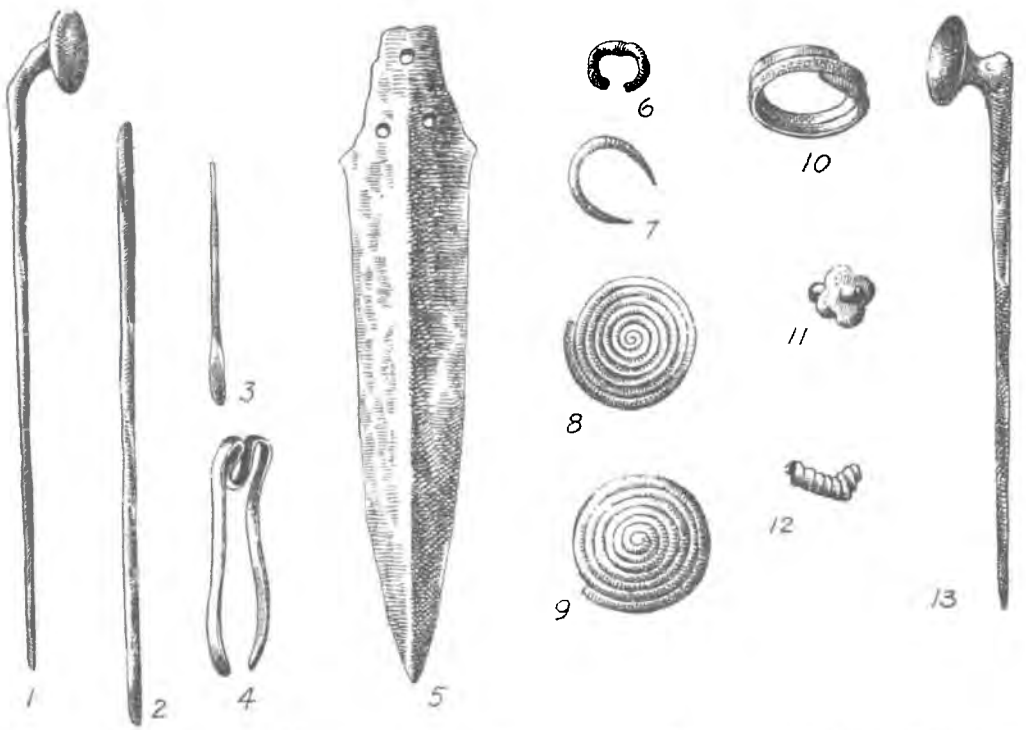


FIG. 46. **1, 2, 13,** pins; **3,** needle; **4,** M-shaped tweezers; **5,** dagger blade; **6, 7,** pendants; **8, 9,** spiral plates (parts of bracelets); **10,** ring; **11,** bronze bead; **12,** spiral, from the barrow at Pomysk Mały (Kl. Pomeiske), district of Bytów in eastern Pomerania, northern Poland. Scale approx. 2/3. *After* Kersten, 1958.

axes continued to be produced, but richness of decoration and grace of form disappeared. The disc at the butt end was usually ornamented with a star motif and not with an interconnected spiral motif as during the preceding phase. Dagger blades were plain, elongated and triangular with a mid-rib (figs. 45, *2*; 46, *5*). Double-edged razors with a ring handle (fig. 45, *12*) and M-shaped tweezers (figs. 45, *13*; 46, *4*) appeared.

Flange-hilted swords of this phase show a further evolution from the Trebivlice type, differing from the latter by having strongly projecting rounded shoulders, and a hilt with high, thin flanges and somewhat flaring sides. Some specimens were of considerable length, nearly 80 cm long. This swords are known as "type Ia", after the classification by Sprockhoff (1931) and to the present time they have been regarded as the earliest flange-hilted swords in central and northern Europe. Their distribution covers central Europe and northwestern Europe (cf. map of distribution: Cowen, 1956, p. 57). One well-preserved specimen, 77 cm long, was found in the barrow of the cemetery at Houštka, southern Bohemia (fig. 45, *1*). Although found in a grave, it apparently was not associated with other finds; but in other graves of the same cemetery were found pins with bent heads ending in discs and having small ears (fig. 45, *9*), bronze arrowheads (fig. 45, *3-8*), M-shaped tweezers (fig. 45, *13*), double-edged razors (fig. 45, *12*), a pot with a cylindrical neck (fig. 45, *11*) and other artifacts. Another example similar to Houštka comes also from a well datable assemblage of finds made in 1873 in Streufdorf, district of Hildburghausen, southern Thuringia (Feustel, 1958, p. 93). The sword (pl. 53, *1*) was found in an inhumation grave within a stone cist in association with a short dagger blade (pl. 53, *5*), a long flanged axe with low flanges (pl. 53, *3*), a pin with a cylindrical, swollen and slightly ribbed neck (pl. 53, *2*), a pin with no distinct neck, but slightly thickened head (pl. 53, *4*), ornamented disc-shaped plates with concentric decoration and a low knob in the middle (pl. 53, *6*, *7*), arm-rings with overlapping ends (pl. 53, 8), and spiral arm-rings (pl. 53, *9*).

Trade in amber is indicated by amber beads in the early Lusatian cemeteries (cf. amber necklaces

of spherical and flat biconical beads from the cemetery of Kruszyniec (Juppendorf) in Silesia, fig. 195, *15-21*), and the Tumulus cemeteries in southern Germany (pl. 54). Here, along with biconical and small cylindrical amber beads flat spacer beads were found. They were parts of pendant-like chest ornaments. A reconstruction of such an ornament was made from beads found in the cemetery of Asenkofen (fig. 185).

From the above it can be seen that trade did not cease. People traded in weapons, razors, tweezers, blue glass beads, and amber. These widely spread objects indicate contemporaneity of the following cultural groups: the late Tumulus culture in western central Europe, the early Lusatian culture in eastern Germany and western Poland, the Piliny culture in the western Carpathians (northern Hungary and western Slovakia), the later phase of the Komarov group of the North Carpathian culture, the early classical Baltic culture and Northern Area culture of Period II a-b or Horizon IV in Hachmann's system.

If the period of wide distribution of the early and middle Tumulus bronzes can be attributed to the late fifteenth and the greater part of the fourteenth centuries B.C., this period characterized by the process of crystallization of bronze forms into individual regional groups should be assigned to the end of the fourteenth and the first half of the thirteenth century B.C. The end of this phase must lie in the middle of the thirteenth century B.C. since the successive phase is dated on the basis of Late Helladic III B connections.

An explanation is needed here regarding the chronological labels used by Reinecke 50 years ago. This phase is his "B_2", but because it succeeds the Třebivlice or Phase B_2, we have to use the letter "C" for the late Tumulus assemblages. Reinecke's Phase C was a misconception; it was built of bronze forms which belong to B_2 and to C. The bronze types which were held to be representatives of Reinecke's Phase C were reproduced in 1911 (Reinecke, 1911). Later on the same plate was reproduced by many other authors. (Among others Childe reproduced it in his paper in *Proceedings of the Prehistoric Society* for 1948, pl. XVI; Childe, 1948b). The objects illustrated include finds from various sites of southern Germany and Bohemia. Among them are the flange-hilted sword and pin with a slightly ribbed head from the grave of Třebivlice in Bohemia reproduced here in figure 40, *2, 5*, the flange-hilted sword (fig. 42, *1*) and pin from Hammer which belongs to the same chronological grouping as the Třebivlice grave, the M-shaped tweezer, which occurs in the graves and hoards of late Tumulus or Phase C (fig. 46, *4*), the dagger blades which appear in early, middle and late Tumulus phases, the pin with a small globular head having the neck ornamented with a zigzag motif and horizontal striations – a typical representative of early Tumulus or Phase B_1. It was already mentioned that graves and hoards like Třebivlice and Hammer belong to middle Tumulus or Phase B_2 and therefore cannot be labeled as late Tumulus or Phase C. There are numbers of recent finds, particularly in Bohemia and Slovakia, which can prove this. In Reinecke's time the materials were not sufficient for chronological classification. The worst trouble is that Reinecke's misconceived Phase C was, and still is, repeatedly mentioned and inserted in the chronological charts and this naturally obscures the chronological classifications. Some authors accept Phase C without criticism, some acknowledge the fact that "C forms" are missing in the area under examination (Holste, 1939), and others logically tend to squeeze it between B_2 and D comprising C and early D forms in a separate phase (Hawkes, 1948; Milojčić, 1959); but then it is no longer Reinecke's Phase C.

B. COMMERCIAL RELATIONS BETWEEN THE AEGEAN AND NORTHERN PONTIC AREA, THE CAUCASUS, AND THE NEAR EAST

1. *Amber trade with the Near East and the Caucasus. A figurine of the Hittite thunder or lightning god in Lithuania*

Amber trade was not limited to the area between the Baltic Sea and Greece. There is some evidence that during the fourteenth century B.C. amber reached the Near East and the Caspian Sea. Two amber

routes are possible: one via Greece to the Near East, another via eastern central Europe and the northern Pontic area to the eastern Caucasus.

A bronze figurine of Syrian or Anatolian origin found in Lithuania speaks for long distance commercial contacts, probably in connection with the amber trade. The statuette was found at the mouth of the Nemunas River in Šernai near Klaipėda (pl. 16). This small figurine (about 15 cm in height) was discovered under a stone in the forest. It portrays a brachycephalic man wearing a cylindrical hat; he is stepping forward with his left leg. The left arm is bent, the right upraised. A weapon was probably originally held in the right hand. The Šernai figure is an import from the Near East and it is especially close in style to the Anatolian and north Syrian statuettes. The fact that relatively few of these statuettes are known from Anatolia makes it uncertain whether the Šernai figurine is of Anatolian or Syrian origin. This type had a long life in the Near East, appearing soon after the middle of the second millennium and persisting until the seventh century B.C. (information kindly provided by K. Bittel, Istanbul). Figures of this sort developed under strong Hittite influence and represent the thunder or lightning god.

This statuette may have arrived at the coast of the Baltic Sea in exchange for amber. A number of statuettes from Ras Shamra, Lebanon, dated to the fourteenth and thirteenth centuries B.C., are very similar, but not identical (cf. *Syria*, 1936, pls. XV, *4*; XXI; 1937, pl. XXIII). Figurines of almost the same kind were found in Greece: in Mycenae and Tiryns (Wace, 1949, fig. 110, *c*, *d*). They came into Greece as imports from Syria or Lebanon. This allows us to assume that the figurine from Šernai may have traveled to Lithuania via Greece following the amber route, probably in the thirteenth century B.C.

An axe-shaped amber bead was found in the cemetery of Khorochoj, Dagestan, northeastern Caucasus (fig. 47, *6*). It came to light in one of the stone-cist graves (grave No. 2) together with copper plate hair-rings or earrings with widening, convex and overlapping ends, copper pendants, tubular copper beads, cylindrical and annular faïence beads, beads of antimony, antimony pendants decorated with solar emblems consisting of engraved circles or crosses in relief, and perforated shells (fig. 47). Other stone cists of the same cemetery yielded numbers of faïence, marble, belemnite, lignite, and shell beads, copper beads and pendants, copper bracelets made of a thick copper band, bracelets round in cross-section, and pottery, usually bulging vessels with distinct necks and narrow bases, decorated with an incised band in relief below the neck (Kruglov, 1958, pp. 100-140).

Copper or bronze hair-rings from the Khorochoj cemetery are surprisingly similar to the gold hair-rings from Hungary and eastern Slovakia, where they belong to the assemblages of finds which can be fitted into Phase B. We may compare hair-rings from the gold treasure of Barca (pl. 51) and from the gold treasure of Kengyel, district of Szolnok, Hungary (Mozsolics, 1958).

The gold cup from barrow No. 17 of the Trialeti cemetery in Georgia was decorated with amber. This amber looks very much like Baltic amber although it has not yet been analyzed (information supplied by Prof. Dzhaparidze and Dr. Abramishvili, Archaeological Museum in Tiflis-Tbilisi, Georgia, 1960). Furthermore, amber pendants came to light in the Agha-Evlar cemetery in the Persian Talysh, northern Iran (stone cist No. 1), in the assemblage labeled by Schaeffer "Late Talysh 2" which belongs to the "cylinder period", 1450-1350 B.C. (Schaeffer, 1948, pp. 413 ff.). Although the Agha-Evlar amber also was not analyzed, the possibility is not excluded that this amber is Baltic amber and came to northern Iran via the Caucasus or via Greece.

2. *Aegean double-axes northwest of the Black Sea*

From north of the Black Sea two hoards are known which include symmetrical double-axes of bronze, the ultimate origin of which undoubtedly lies in the Aegean world. One hoard was found near the village of Kozorezovo on the Ingul' River, west of the lower Dnieper (Tallgren, 1926, p. 162). Twelve

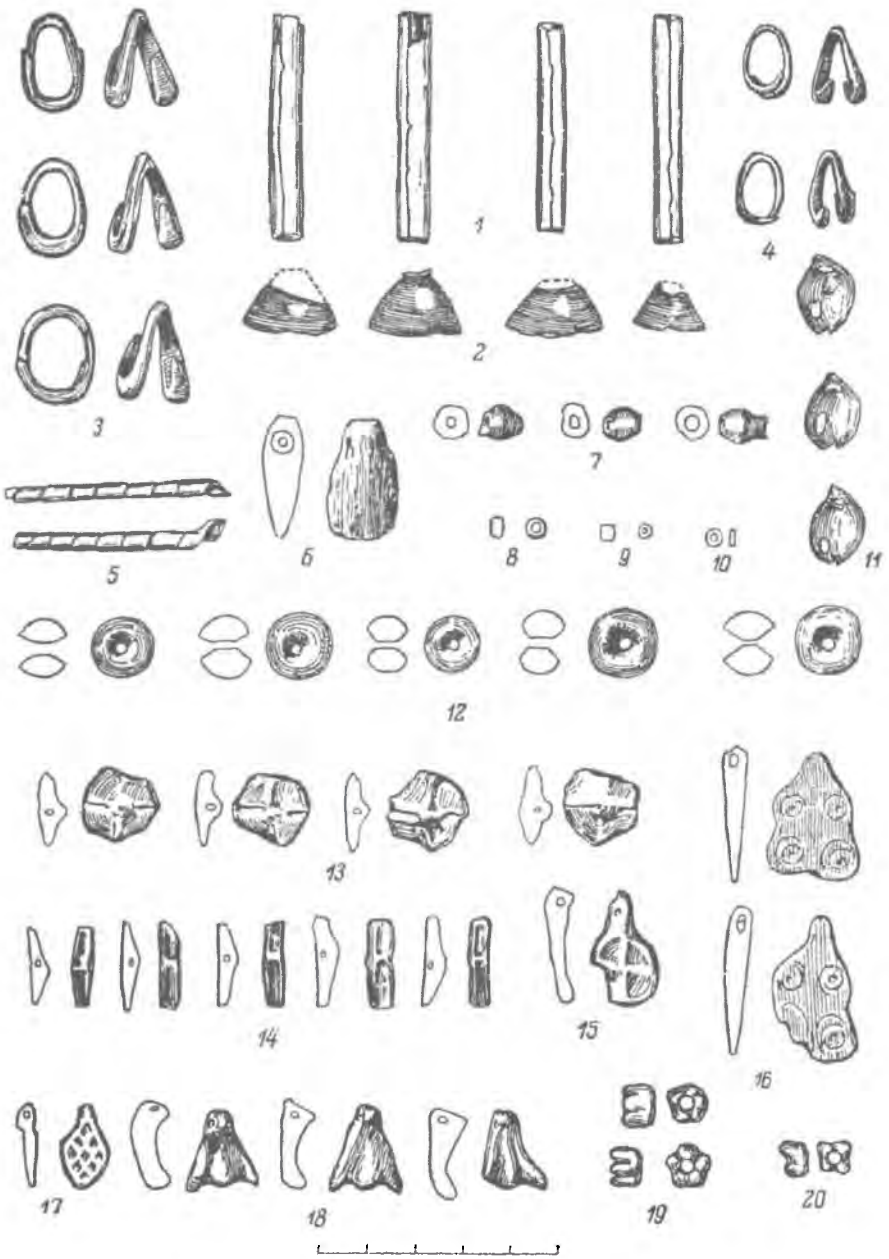


FIG. 47. Ornaments from the cist-grave No. 2 of the cemetery of Khorochoj, Dagestan, northeastern Caucasus. **1,** tubular beads of copper plate; **2,** copper pendants; **3, 4,** copper spiral hair-rings with widening and overlapping ends; **5,** copper plate tube; **6,** amber bead (or pendant); **7-9,** faïence beads; **10,** bead of lignite; **11,** perforated shells; **12,** carnelian beads; **13-20,** pendants and beads of antimony. *After* Kruglov, 1958.

bronze sickles and two double-axes (fig. 48) were deposited in a stone vessel. One axe was of the usual double-axe type, the other had a short-ribbed socket on each side of the shaft-hole. Another hoard, discovered in 1892 at Chtetkovo on the Southern Bug River, contained six double-axes with oval shaft-holes, 11 sickles and one fragment of a flat axe (fig. 49). Several other double-axes found as isolated finds are known from the same area around Dnepropetrovsk (Tallgren, 1926b, p. 173; Iessen, 1947).

In Crete double-axes are fairly frequent from the beginning of the Middle Minoan period; some very thin ones may even date from the Early Minoan. However, the nearest analogies for the Ukrainian double-axes are known from Mycenaean Greece and mostly from its late period. Between the Ukraine

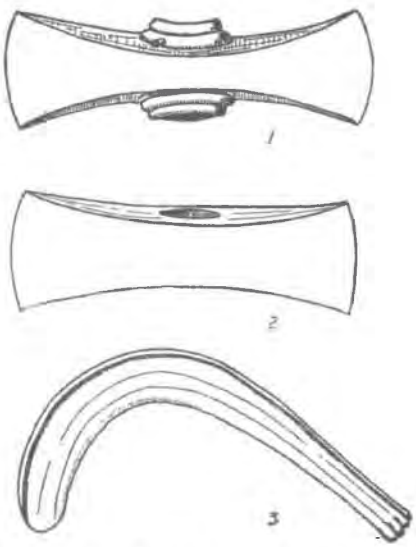


FIG. 48. Kozorezovo hoard on the Ingul River, western Ukraine. **1, 2,** double-axes; **3,** sickle. Scale 1/3. *After* Aspelin, 1877.

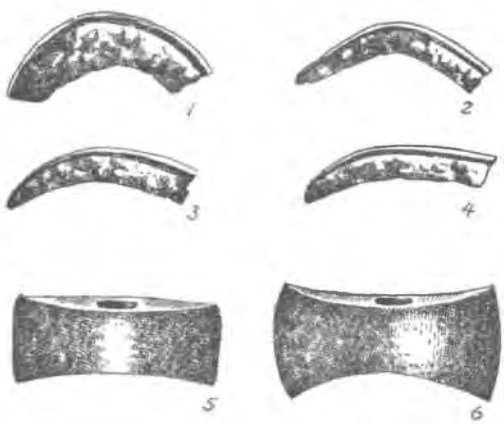


FIG. 49. Chtetkovo hoard from the Southern Bug River area, western Ukraine. **1-4,** sickles; **5, 6,** double-axes. Scale approx. 1/4. *After* Tallgren, 1926b.

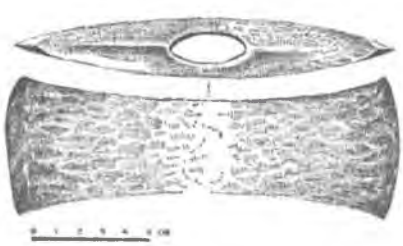


FIG. 50. Double-axe from the hoard of Athenian Acropolis. *After* Montelius, 1924.

and mainland Greece, four double-axes are reported from Bulgaria (one from Semerdzievo, Ruse, Sofia Museum; Piggott, 1954, p. 226; see there the reference list of the finding places of the double-axes in the Aegean area). The double-axes from the hoard of Chtetkovo have close analogies in the hoards from the Athenian Acropolis (fig. 50) and Mycenae, which are probably very late thirteenth century B.C. in date (information kindly provided by N. K. Sandars). A similar axe is known from Megiddo in Israel (Tell el Mutesselim), level 4, where it was found in the level containing Mycenaean pottery. The same type of axe is found in the Enkomi hoard of Cyprus, where it dates from around 1200 B.C. (Schaeffer, 1952). One double-axe discovered at Mycenae by Wace may date from Late Helladic III B or a little later (Stubbings, 1953, 1954, p. 292). Double-axes from Troy VI are also of a very similar type (Schliemann, 1881, figs. 1429, 1430). Those from the Tomb of the Double-Axes in Crete date from around 1400 B.C.

The rather long existence in the Aegean World of the double-axes, with almost no alteration in form, renders it difficult to date these axes more precisely. The earlier double-axes from Crete have a round perforation; oval perforations come later. Those from mainland Greece and from the Ukraine have oval shaft-holes.

I have not succeeded in finding close analogies in Greece or elsewhere in the Aegean area for the double-axe with the raised socket around the shaft-hole from the Kozorezovo hoard. This type of axe may prove to be of local east central European origin. Some relationship is seen between this axe and the shaft-hole axe called the "Bohemian type" having a long vertical and ribbed socket known from the Füzesabony, Věteřov, and Mad'arovce groups (cf. pl. 11, *2*, *3*; figs. 26, *5*; 146, *2*). The sickle from the Kozorezovo hoard is so far unique. It has no parallels in central Europe, but generally recalls the Near Eastern and Caucasian sickle types.

From the above parallels it may be assumed that the Kozorezovo hoard is probably not later than the fourteenth century B.C. The Chtetkovo hoard may date from either side of 1200 B.C.

3. *Aegean (Late Helladic III A) relations with the Caucasus*

There are a few hints for the presence of relations between Greece and the Caucasus during Late Helladic III A. Objects having indubitable parallels in Late Helladic III A appeared in the cemeteries of Georgia. They are of the utmost importance for the dating of the Caucasian Bronze Age materials.

An indication for existing connections is the socketed spearhead of bronze covered with a silver plate with a faceted socket, found in a very rich burial of the kurgan No. XV in Trialeti, Georgia. This spearhead has a close parallel in the cemetery of Prosymna, Tomb X (fig. 51, *1*). The kurgan No. XV of Trialeti was one in the series of huge Trialeti barrows which had a large rectangular burial pit under the barrow and a dromos. The spearhead was associated with red painted pottery (fig. 52, *1*), numerous gold objects including drums, "standard" parts (fig. 52, *5*, *6*), pendants – a silver cup (fig. 52, *2*), a footed cauldron of bronze (fig. 52, *3*) and two skeletons of oxen (Kuftin, 1941, pls. CXXXI, CXXXII LXXXVII, XCIX, C, CII). Another spearhead similar to that found in Trialeti was discovered in 1938 in the barrow of Kirovakan, about 180 km north of Erevan, in Armenia. Along with the human burial there were in the grave bones of oxen, pots, and a gold cup (Archaeological Museum in Erevan; information from B. B. Piotrovskij).

The single barrow in the area of the large flat cemetery at Samtavro in Mtskheta, Georgia, contained a grave with sword or rapier, 94 cm. long, and a short Caucasian tanged dagger or knife (fig. 53, *2*), gold beads, carnelian pendants, and pots (Chubinishvili, 1955, 1957). The rapier is generally similar to Late Helladic III A rapiers and to those distributed in Rumania. This may place the earliest Samtavro grave at the beginning of the fourteenth century B.C., not in the eighteenth-sixteenth centuries B.C. as is thought by Chubinishvili. Several other rapiers come from Gachagan in Armenia (Archaeological

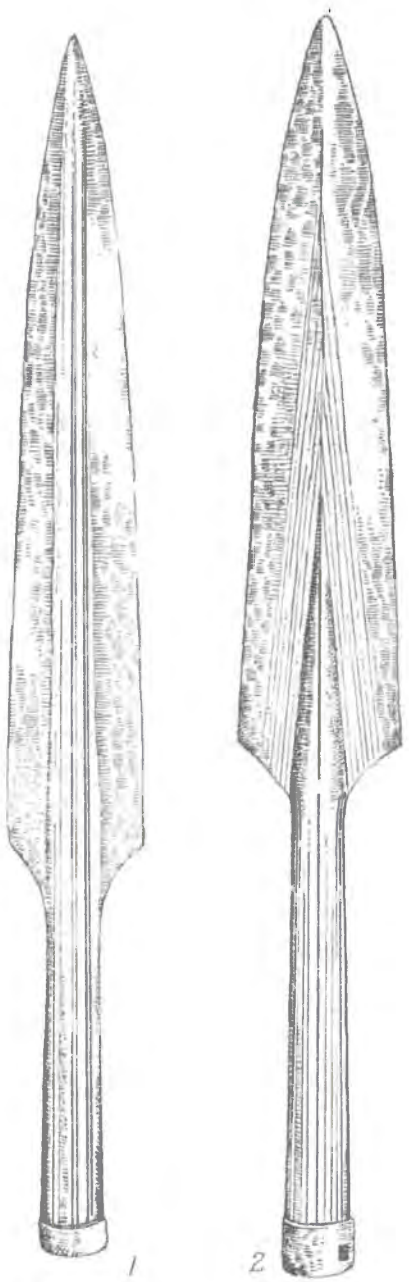


FIG. 51. Spearheads from: **1**, Prosymna, Greece; and **2**, Trialeti, Georgia, western Transcaucasia. Scale approx. 2/3. *After* Blegen, 1937, and Kuftin, 1941.

Museum in Erevan). A fragment of a sword decorated with parallel ridges and grooves on both sides of the blade found in the Trialeti wagon-grave (kurgan No. XXIX) together with a large globular pottery vase and gold hair-rings (Kuftin, 1941, pl. 109) has a very close analogue in Rumania: Roșiori de Vede, southwest of Bucharest (Dumitrescu, 1938). The latter unfortunately is an isolated find.

4. *Near Eastern, Caucasian, and northern Pontic relations*

During the fourteenth and thirteenth centuries B.C. bronzes found in the southern and central Caucasus show continuous relations with the Near East – northern Iran, northern Iraq, eastern Anatolia, Syria,



FIG. 52. Finds from barrow No. 15 of the Trialeti cemetery, Georgia, Transcaucasia. **1,** red painted bowl; **2,** silver cup; **3,** footed bronze cauldron; **4,** gold cup; **5, 6,** "standard" parts; **7,** bronze spearhead covered with a silver plate; **8,** bronze dagger; **9,** flint arrowheads. Scale approx. 1/3. *After* Kuftin, 1941, and Schaeffer, 1948.

and Lebanon. Some Caucasian objects, like daggers, spearheads, arrowheads, lugged axes, have very similar or even identical equivalents in the south (compare the hoard of 74 objects from Ras Shamra, Lebanon, fig. 54; assemblages from Russian Talysh like Agha Evlar, fig. 31; Caucasian Near Eastern daggers, fig. 55; lugged adzes from Ras Shamra, fig. 54, *7*, and eastern Anatolia; spearheads and daggers from Ras Shamra, fig. 54, *3, 9, 11*; Kvasatali, Ossetia, fig. 340, *6-9*). The hoard of 74 objects in the House of the High Priest of Ugarit found at Ras Shamra, is dated in round figures to 1400 B.C.-1300 B.C. (Schaeffer, 1956, p. 260, fig. 224). Daggers of Near Eastern type lasted in Syria and Lebanon through the thirteenth century B.C., as is shown by well dated assemblages.

Trade is also in evidence between the Caucasus and the south of Iran. An isolated find of a Syrian cylinder was discovered in the central Caucasus (Uvarova, 1900). It is transitional between Mitannian and Middle Assyrian in style. (Comparable examples are published in *Zeitschrift für Assyriologie*, 18, 1957, Nos. 71, 94.) Hence it can be dated as fourteenth century B.C. (This information is based on the kind communication of Dr. E. Porada.)

C. COMMERCIAL RELATIONS BETWEEN CENTRAL, SOUTHERN, AND EASTERN RUSSIA, SIBERIA, AND CHINA

1. *The Sejma assemblage in eastern central Russia and its affinities*

The finds made between 1914 and 1922 on the Sejma dune near Balakhna in the district of Gorkij in eastern central Russia (Gorodtsov, 1916; Shmidt, 1927; Tallgren, 1915, 1916, 1920, 1926b) are of great value in dating central, eastern, and northern Russian cultures. No closed grave groups from Sejma

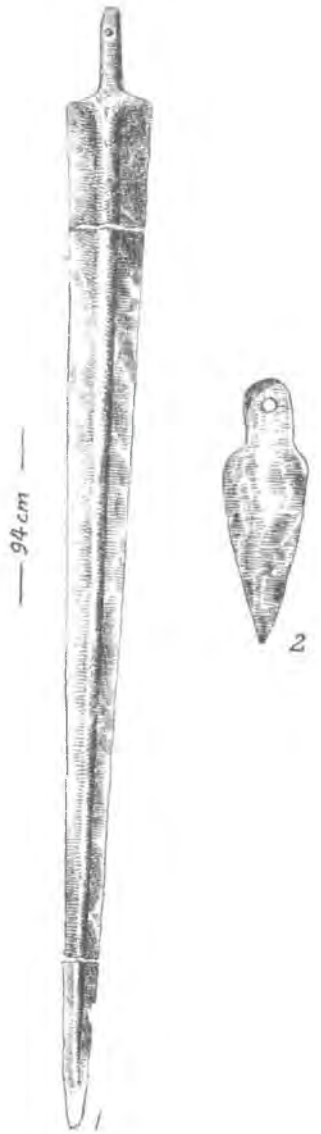


FIG. 53. **1,** Rapier and **2,** knife from the barrow of the Samtavro cemetery (Samtavro I), Georgia. *After* Chubinishvili, 1957.

have been published. A fairly large number of finds, consisting of copper, bronze, stone, amber, bone, and ceramic artifacts, came from a habitation site and cemetery. It is possible that not all of the known finds from Sejma belong to the same period, but certain groups of Sejma finds were found together 75-100 cm below the surface of the ground. Traces of human skeletons are also reported. Hence it is seen that the chief part of the Sejma material, including the famous bronze celts, spearheads, daggers, and flint arrowheads, very probably are grave finds. An important part of the Sejma assemblage can be compared with similar objects or molds for making them, from the grave contents found in the sites of the Kama basin in eastern Russia and in Siberian sites. Close analogies make it clear that the basic group of Sejma finds forms a unit in the chronological sense.

The total assemblage from Sejma (figs. 56-58; 59, *1*; 60, *1*; 66, *9*; 68, *1*; pl. 17A, *1*) consisted of: 33 daggers or knives of copper, some of them ending in a cast elk's head; 19 socketed celts of bronze, from 9 to 16 cm long; two flat bronze arrowheads; a flat copper axe, 10.5 cm long; one narrow flat axe, 18 cm long; one narrow gouge-like implement; four copper awls; one hoe-like implement with a folded socket; two copper shaft-hole axes; two bronze and four flint knives or sickles, one of them with a wooden handle; four bracelets of open type, with overlapping ends; and 10 spearheads of bronze,

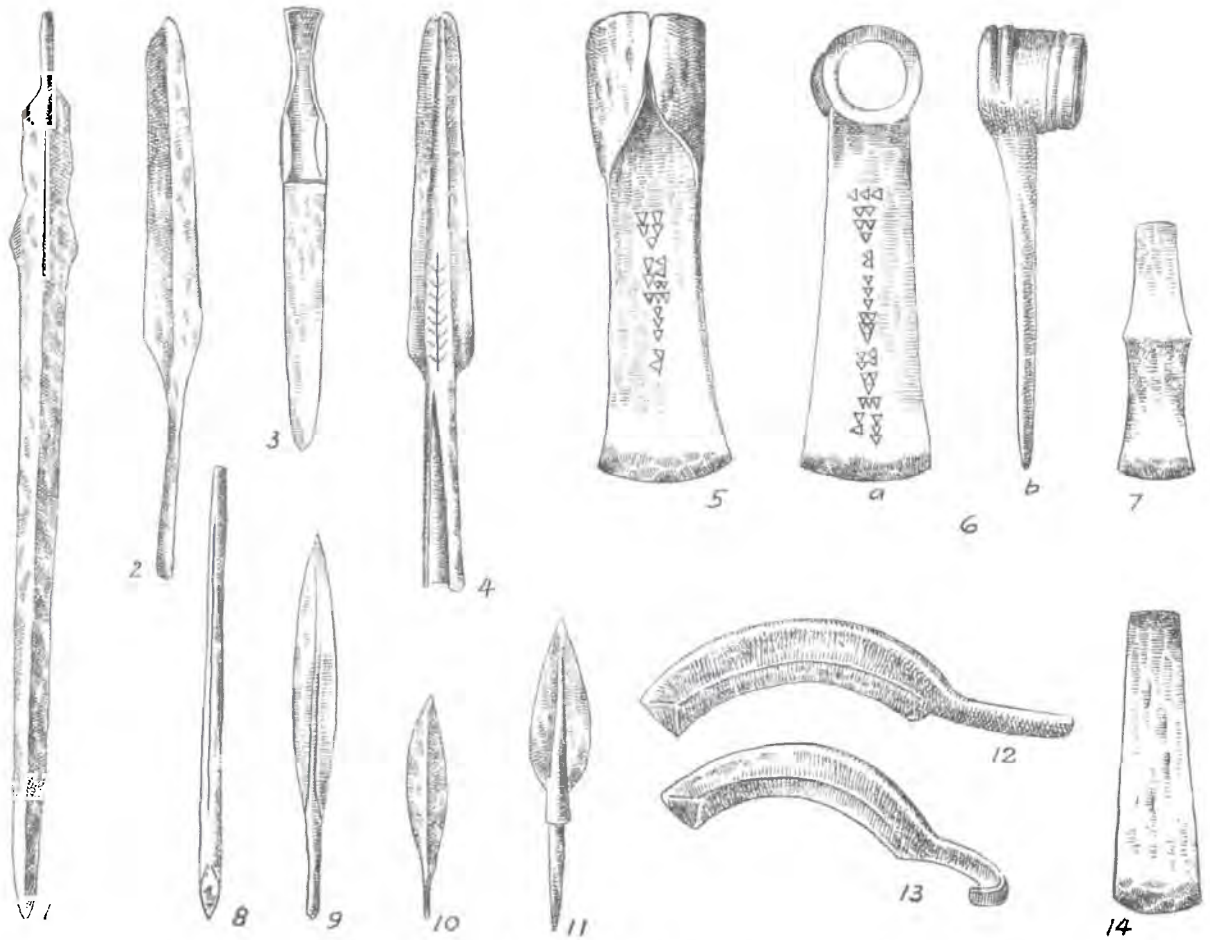


FIG. 54. Types of bronze artifacts from the hoard of 74 objects found in the House of the High Priest of Ugarit, Ras Shamra, Lebanon. **1,** sword; **3,** Near Eastern dagger; **2, 4, 9-11,** spearheads and arrowheads; **5, 6,** celts ("herminettes") with inscriptions; **7,** lugged adze; **8,** awl; **12, 13,** sickles; **14,** flat axe.
Scale approx. 1/3. *After* Schaeffer, 1956.

three of which had a forked socket, a small loop and a decoration of several horizontal lines, the other two spearheads having no loops and a folded socket. The longest spearheads were over 40 cm long, the average length of the others being over 20 cm. Among other finds there were one pendant of amber, one of slate, six rings made of white nephrite or serpentine, several pendants and a disc of clay, a flint dagger, 20 arrowheads of flint and one of slate, arrow straighteners of stone, and pottery sherds.

The socketed celts and spearheads, the knives or daggers with broad blades and the inward-curving knives with animal terminals have the closest analogies in the Kama River basin. From the viewpoint of chronology, if one mentions the Sejma finds, one must also mention the finds from the cemetery of Turbino on the upper Kama belonging to the culture which is distributed west and east of the middle Urals (Shmidt, 1927; Prokoshev, 1941; Bader, 1958). Quite uniform finds in both sites, the socketed celts, decorated with rhombs, triangles and vertical strokes around the socket, the rings of white serpentine and the same type of heavy inward-curving knives with animal terminals, show that they must be synchronous. The Turbino knife was decorated with three standing rams (fig. 59, *2*; pl. 17 A, *2*), the Sejma knife with two small molded horses (fig. 59, *1*; pl. 17, A, *1*). The Sejma and Turbino sites were situated about 600 km from each other. Artifacts closely related to the Sejma and Turbino assemblages were found in many other sites on the Kama-Chusovaja confluence, such as those of Borovoe Ozero II,



FIG. 55. Near Eastern dagger found in the vicinity of Kumbulta, Ossetia. Scale approx. 1/3. *After* Krupnov, 1951.

Bor I, and Ust'-Gajva (fig. 443). Rings of serpentine and an amber pendant were found in the Kama-Chusovaja sites alongside a very similar stone industry.

The Sejma and Turbino people traded over distances of thousands of kilometers. The amber pendants discovered in Sejma and the Borovoe Ozero II site probably came from the southeastern Baltic coast, the slate pendants probably from Karelia. The elk head of the Sejma dagger is of a form similar to the elk head of the bronze pin found in Kruhowicze, northern Poland (Gimbutas, 1957, pl. XV), and the elk heads carved in wood and antler known from the Urals (Gorbunovo and Shigir sites, fig. 60, *3*) and Karelia (Säkkijärvi, fig. 60, *4*). The sculpture in wood of a snake, found in the middle layer of Section Six of the Gorbunovo peat bog site (fig. 60, *2*), is very like that of the Sejma copper dagger (fig. 60, *1*). The similarity of these art objects indicates the existence of a vital contact between the Baltic area, northern Russia, and the Urals. Sejma at the confluence of the Volga and the Oka was probably one of the important points in the trade routes.

The inward-curving knives with animal terminals, the socketed celts, the spearheads, and the rings of white serpentine point to even further-reaching relations: close parallels are known in central Siberia as far as the area of Lake Baikal in the east. One knife of the same type was found near Irkutsk (fig. 59, *3*). A similar type of knife is known from the cemeteries on the Tom River near Tomsk in Siberia excavated by Adrjanov in 1889 (Adrjanov, 1899; Komarova, 1952). These knives were found in graves of the "Malyj Mys" cemetery (fig. 61, *2*) in association with a dagger of Timber-grave and Andronovo type (fig. 61, *4*), with bronze plates, probably bridle parts (fig. 61, *9-11*), buttons and other ornaments typical of the inventory of the Karasuk graves (fig. 61, *12-14*). Close to Malyj Mys another cemetery was excavated in the locality called "Bol'shoj Mys", and it has shown related forms of metal (fig. 62), stone, and pottery. Curved knives (fig. 62, *10*, *12*) appeared here in association with socketed spearheads (fig. 62, *8*), daggers of Ordos type (fig. 62, *1*, *2*), bronze bracelets with conical spiral heads at the ends

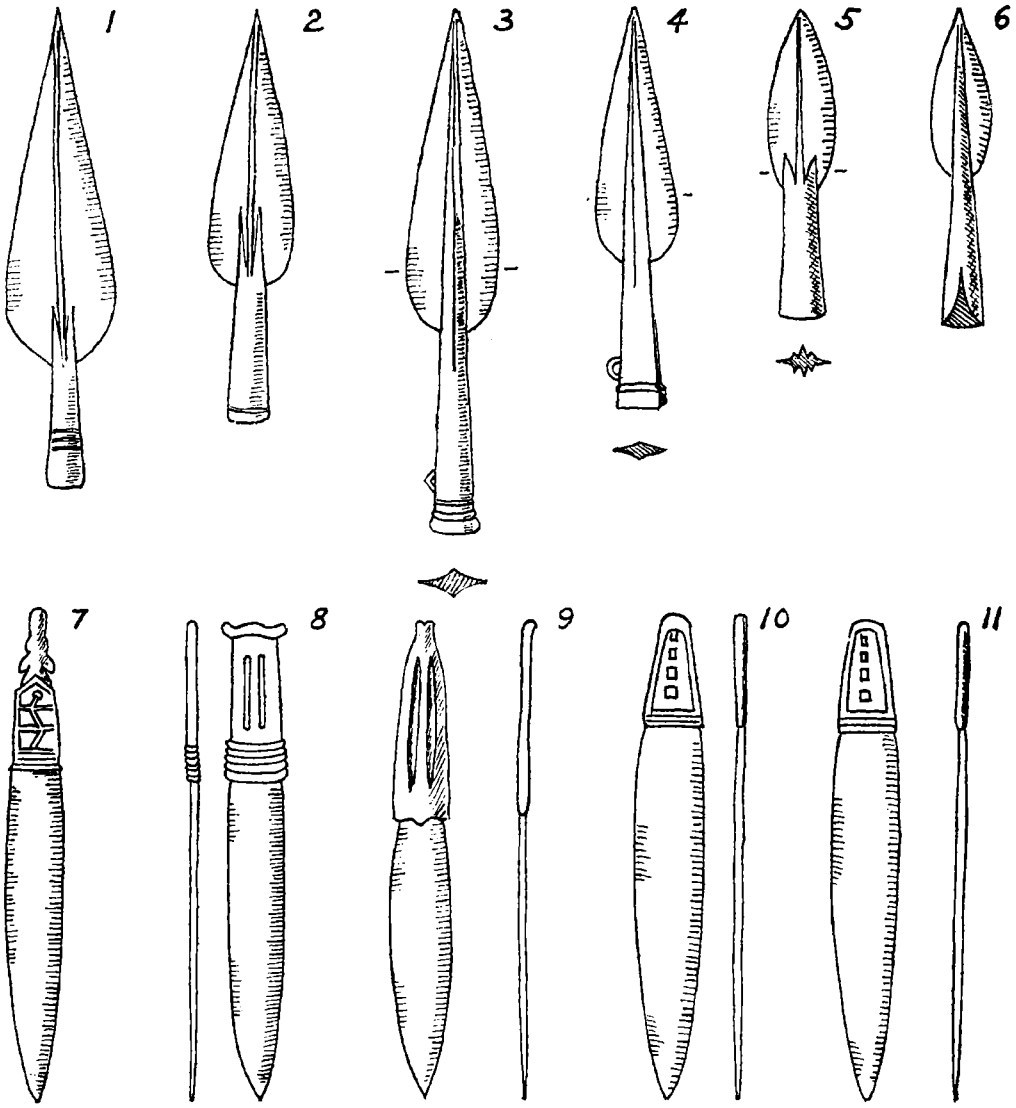


FIG. 56. **1-6,** copper spearheads and **7-11,** daggers from the cemetery of Sejma, near Gorkij, central Russia. Scale approx. 1/4. *After* Gorodtsov, 1916.

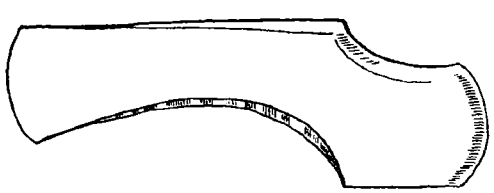


FIG. 57. Copper shaft-hole axe from Sejma. Scale approx. 1/3. *After* Gorodtsov, 1916.

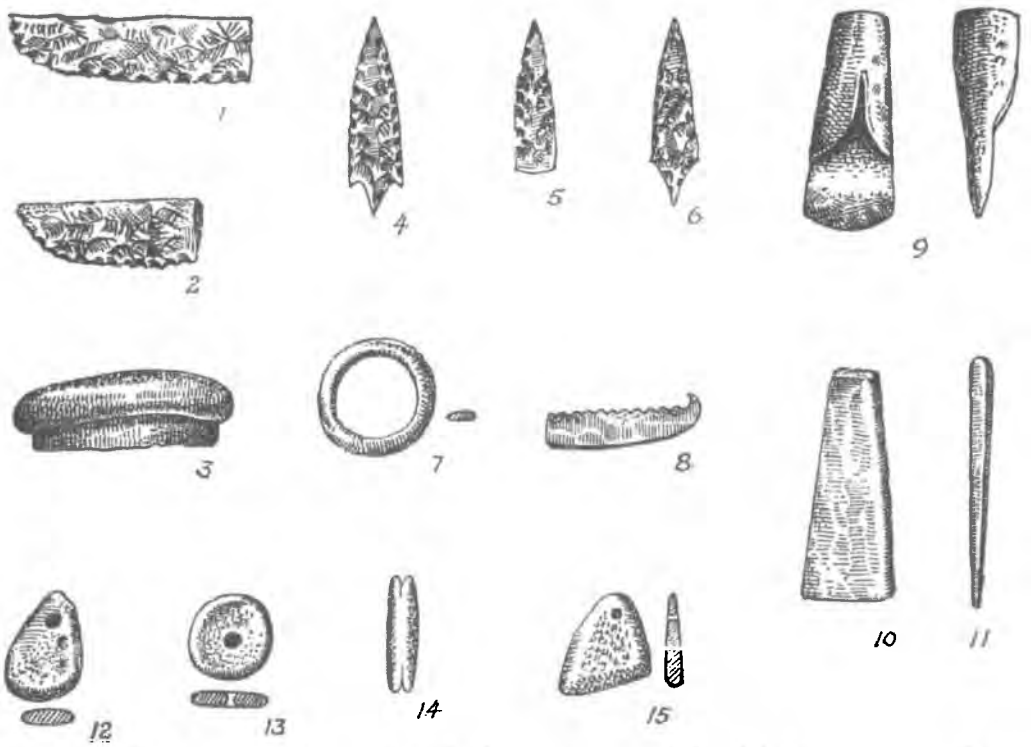


FIG. 58. Finds from the cemetery of Sejma. **1, 2,** flint knives; **3,** copper knife; **4-6,** flint arrowheads; **7,** ring of white serpentine; **8,** copper sickle or knife; **9,** hoelike implement of copper with an opening in the socket; **10,** flat axe of copper; **11,** copper awl; **12, 13,** clay pendants; **14,** net sinker; **15,** slate pendant. Scale approx. 1/3. *After* Gorodtsov, 1916, and Tallgren, 1926b.

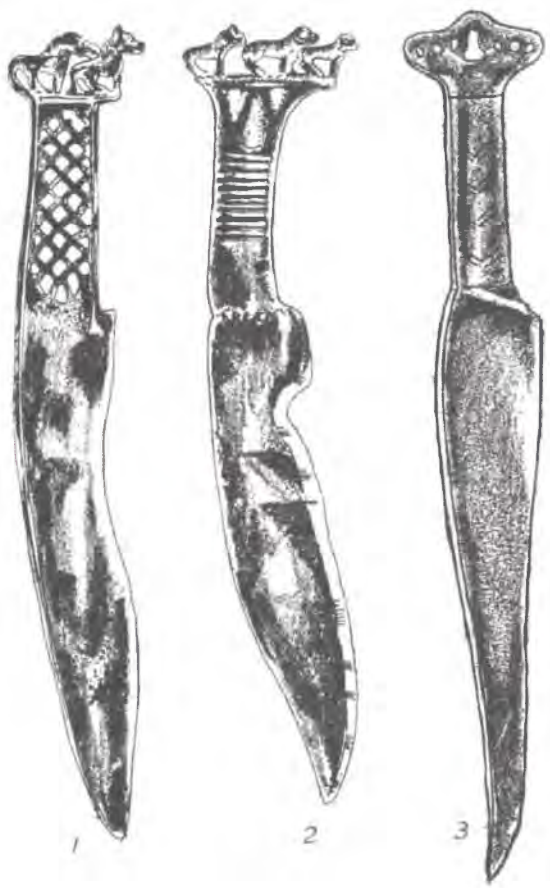


FIG. 59. Bronze knives with animal-shaped terminals. **1,** Sejma, central Russia; **2,** Turbino cemetery on the upper Kama River, west of the middle Urals; **3,** from near Irkutsk, central Siberia. Scale approx. 1/3. *After* Eding, 1940b **(1, 2),** and Kiselev, 1951 **(3).**

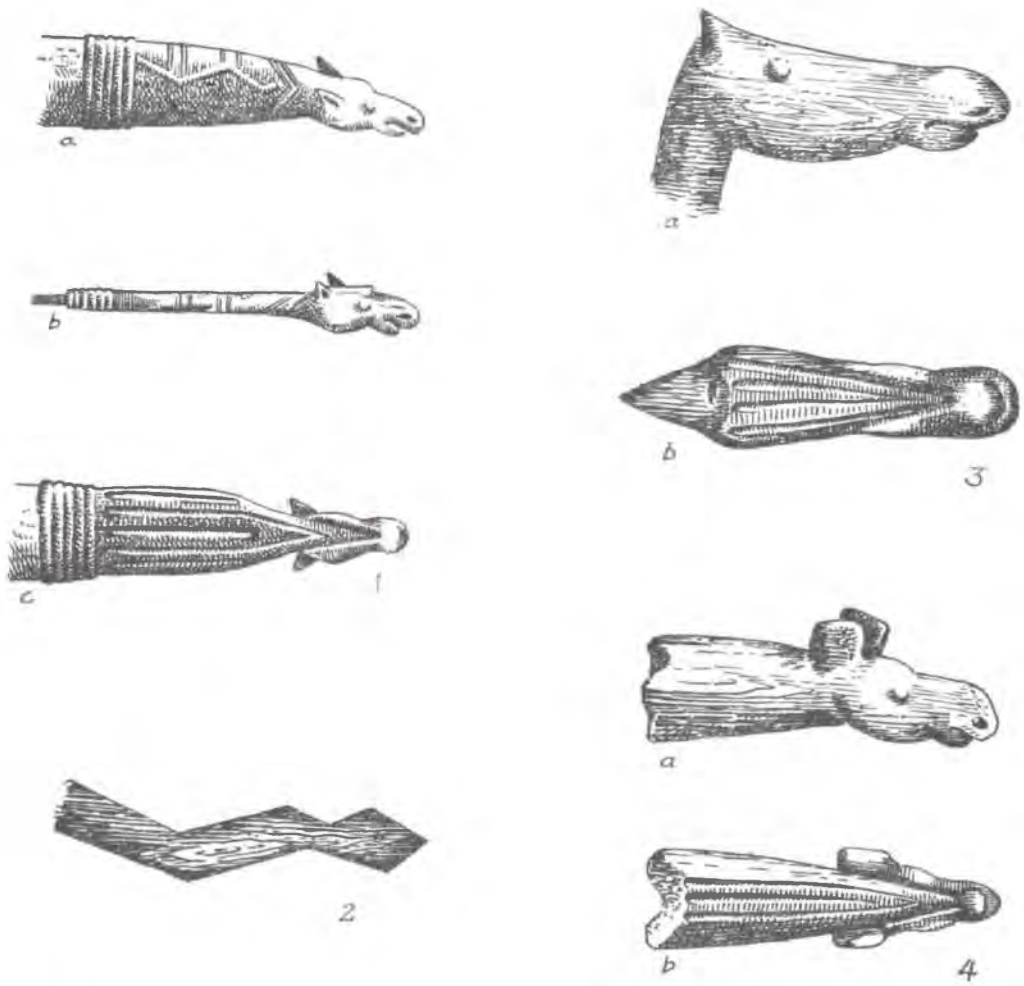


FIG. 60. Elk heads and snakes in copper, wood, and stone. **1,** handle of copper dagger, three views, from Sejma; **2,** snake carved in wood, from the peat bog at Gorbunovo, middle Urals; **3,** elk's head sculptured in wood, from the peat bog at Shigir, middle Urals, two views; **4,** fragment of stone axe terminating in elk's head, from Säkkijärvi, Finland. Scale approx. 1/2. *After* Gorodtsov, 1916 **(1)**; Eding, 1940b **(2, 3)**; Nordman, 1937 **(4)**.

(fig. 62, *5*), a bronze convex plate (fig. 62, *9*), halberds of Karasuk and archaic Chinese type, called *ko* (fig. 62, *4*), bow fittings, called *pang* in Chinese (fig. 62, *3*), and cylindrical beads of white paste and glass (fig. 62, *6*, *7*). White cylindrical beads are known from many graves of the late Glazkovo period in the Baikal area. The figure of a stylized standing ram portrayed on the socket of the halberds (fig. 62, *4*) is reminiscent of the ram figures on the handle of the Turbino knife (pl. 17A, *2*). The *pang* found in Tomsk is the same type as those which occur in the Siberian Karasuk assemblage and in the cemetery of Anyang of Shang China (fig. 63, *7*). This indicates that the cemetery of Tomsk is contemporary with Karasuk and with the Yin period of the Shang dynasty in China.

The inward-curving knives of Sejma and Turbino have analogies in northern China, where they appeared in great numbers in the Anyang cemetery in the province of Honan (cf. Karlgren, 1945, pls. 30-32). But the Anyang knives had their own variant; they had round or flat and grooved handles terminating in rings or animal heads (fig. 63, *4-6* and pl. 17 B). Animal heads on handles of Anyang knives are probably rightly considered as a northern element (Karlgren, 1945; Childe, 1954). The animal figurines as portrayed on Sejma and Turbino knives are very probably not of European origin. The Ural and northern Russian artists usually portrayed elks, water birds, snakes, and fishes, but not horses

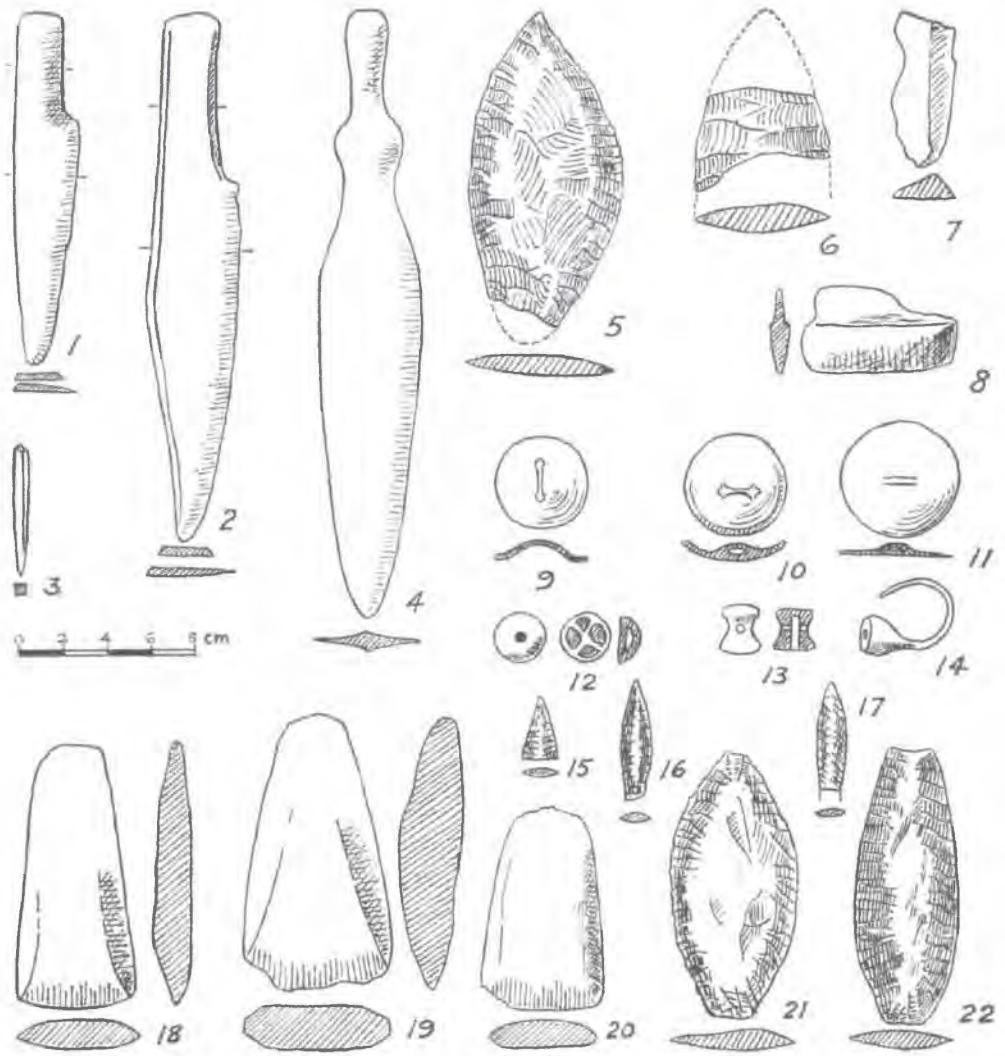


FIG. 61. Finds from the cemetery of Malyj Mys near Tomsk, western Siberia. **1, 2,** bronze (or copper) knives; **3,** awl; **4,** dagger; **5, 6, 21, 22,** flint points; **7,** flint knife; **8,** scraper-like implement; **9-11,** bronze plates, probably bridle parts; **12-14,** buttons and other ornaments; **15-17,** flint arrowheads; **18-20,** stone celts.
After Komarova, 1952.

and rams. The horse and ram portrayal seems to be a native Asiatic tradition. Both European knives and Chinese knives could have originated in Siberia.

The spearheads from Anyang typologically resemble the spearheads of Sejma type. The Chinese specimens usually have two loops (fig. 63, *1-3*), the Sejma, only one or no loops at all (fig. 56, *1-6*), but the mold of the museum of Tomsk in western Siberia (fig. 64, *1b*) shows a two-looped type of spearhead.

Spearheads with two loops, similar to those from Anyang and Siberia, are known from around the mouth of the Vistula near Gdańsk (Danzig) on the Baltic Sea (fig. 65, *1*) and from England (fig. 65, *2;* and compare with Chinese specimens in fig. 63, *1-3*). In England they belong to the period from 1400 to 1300 B.C. (information obtained from Prof. Hawkes). The Gdańsk spearhead is an isolated find. The similarity of form and the date (fourteenth century B.C.) speak for some trade contacts even at such great distances. It is not impossible that Chinese or Siberian spearheads reached the amber source area on the Baltic Sea. Amber beads in central Russia and the middle Ural area are witnesses for commercial contacts across all Russia and the southeastern Baltic area.

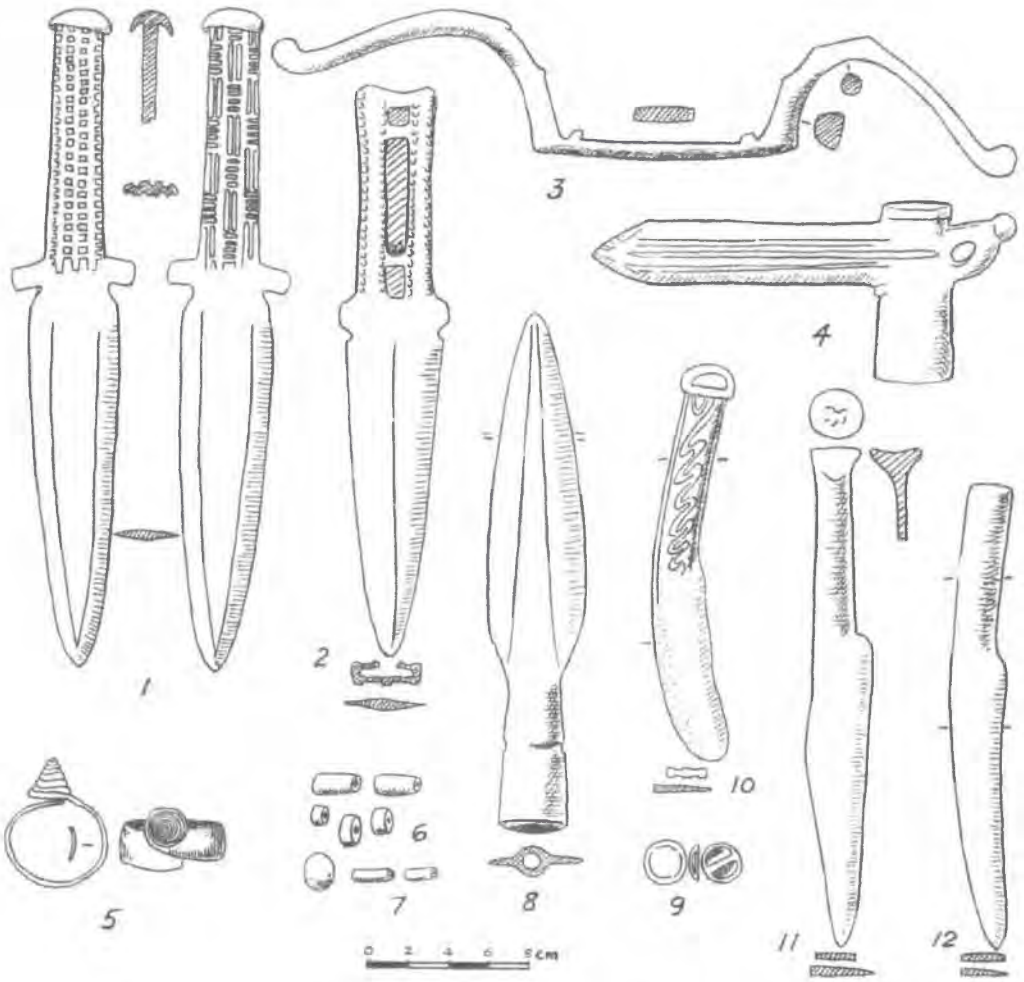


FIG. 62. Finds from the cemetery of Bol'shoj Mys near Tomsk, western Siberia. **1, 2,** daggers of Ordos type; **3,** bronze bow fitting (*pang*, in Chinese); **4,** bronze halberd; **5,** bracelet; **6,** glass beads; **7,** beads of white paste; **8,** bronze spearhead; **9,** bronze convex plate; **10-12,** bronze knives. *After* Adrjanov, 1899.

The rings of serpentine or white nephrite have parallels all the way from central and northern Russia to China. They are also known from western Siberia and from late Glazkovo graves in Cisbaikalia, on the Irkut River and from Anyang.

The well-retouched flint knives from Sejma (fig. 58, *1*, *2*) are very similar in form to the slate knives or sickles from Anyang and from Aqsu (Akosu) in Tien Shan, which is half way between Sejma and Anyang (personal information from Kwang-Chih Chang).

Almost identical socketed celts were found between the Angara River basin in inner Asia and central Russia (figs. 66, 67). Hexagonal celts found in Finland and northern Sweden are related, but lack the decoration of "Sejma" type (fig. 68, *2*). Except for the socketed celts from Sejma and Turbino, only a few are known from graves or hoards. Near Brjansk in western central Russia, a Sejma celt was discovered together with a spearhead, and near Omsk in Siberia the same type of celt was found in association with a spearhead and a dagger. In the middle Ural area, especially east of the mountains, the largest concentration of finds occurs. One celt is in the Sverdlovsk museum, another was found at Lake Ayat, and a well-preserved example is reported from the village of Sosnovskaja (Stepanov, 1954). A mold for a celt of Sejma type was found in the Gorbunovo peat bog site known as Beregovaja I (pl. 104, *3*). Other molds for socketed celts and spearheads (fig. 64) come from the area of the lower Tom

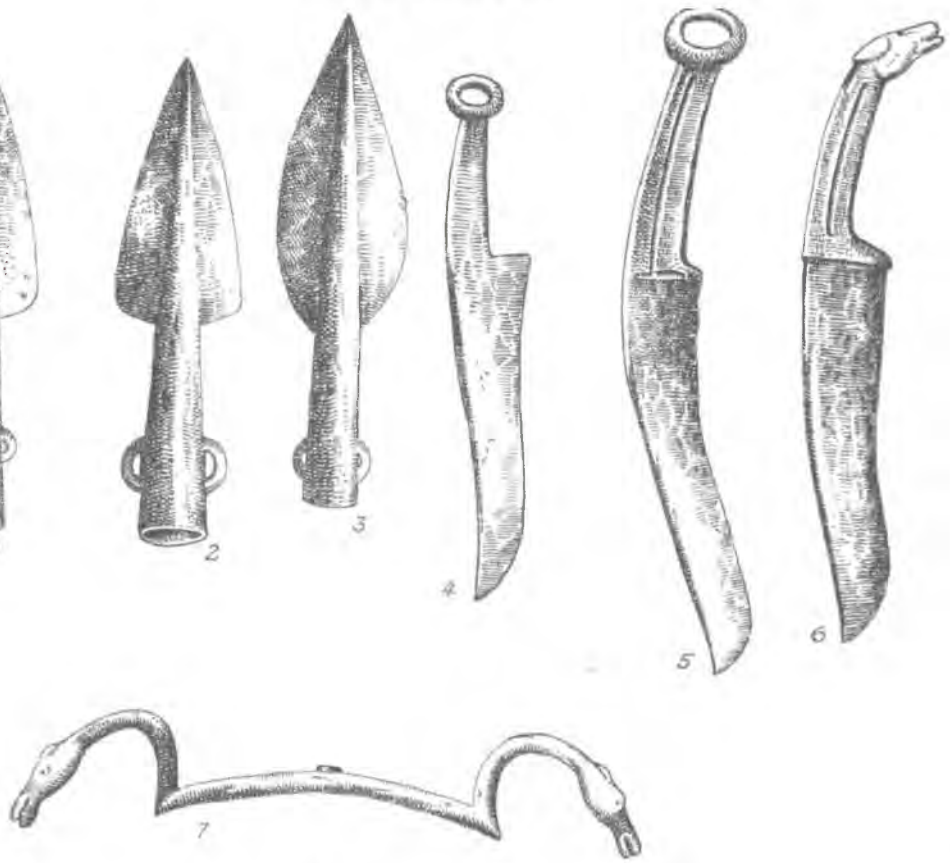


FIG. 63. **1-3,** bronze spearheads; **4-6,** knives; **7,** bow fitting (*pang*) from the cemetery of Anyang, northern China. Scale: **1-3,** approx. 1/4; **4-7,** approx. 1/3. *After* Karlgren, 1945.

near the city of Tomsk, western Siberia. One mold is known as an isolated find, now in the Tomsk University Museum (fig. 64, *1*), and a number of sandstone molds were discovered in the habitation site called Samus IV in Tomsk during 1953-1954 excavations (fig. 64, *2-7*). Molds for celts are as yet unknown from central Russia. To attribute a Siberian origin to the celts is, therefore, a favorable hypothesis. The rhomb and triangle motifs on the celts of Sejma type are very closely related to the ornamental motifs executed on the Karasuk (Kiselev, 1951) and Andronovo pottery (Salnikov, 1952, p. 64, fig. 9).

The socketed celt of Sejma type is the earliest in Russia and Siberia. The distribution of these is tied up with the forested zone of Eurasia. It is possible that the socketed celts originated through direct imitation of the hexagonal stone axes which in the middle of the second millemnium B.C. were distributed in the forested zone of Europe and Asia between Scandinavia and Lake Baikal.

Childe thought that the socketed celt could have been invented before 1300 B.C., because the Shangs at the beginning of their dynasty were already acquainted with it (Childe, 1954). The initial date of the Yin period of the Shang dynasty in China is now held to be after 1401 B.C. Hence the invention of the socketed celt could have taken place not later than the beginning of the fourteenth century B.C. and may have been about contemporary with the invention of the socketed celt in central Europe.

Although at present the archaeological material is not sufficient to indicate exactly where the sources of the curved knives and socketed celts lie, it seems likely that it was inner Asia, probably the region north of China, the Altai, between the upper Irtysh and the Angara. This is supported by the existence of related types of knives and celts in Shang China and the location of the sources of copper and tin (cf. Childe, 1954, pl. I). Trade involving the enormous territory of upper Eurasia was apparently con-

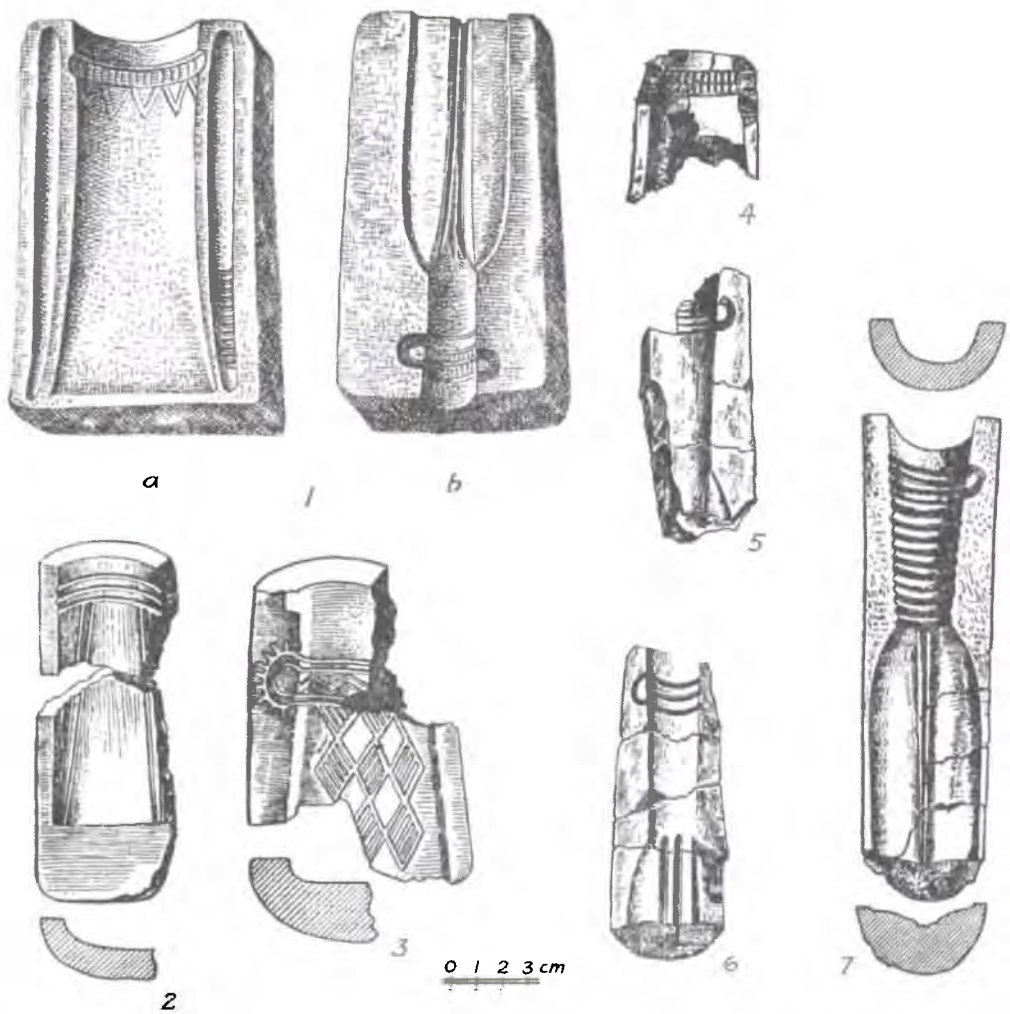


FIG. 64. Sandstone molds for spearheads and celts of Sejma type from western Siberia. **1** *a*, *b*, Tomsk University Museum; **2-7**, from the habitation site of Samus IV, city of Tomsk. *After* Tallgren, 1916 (**1**); Matjushenko, 1959 (**2-7**).

nected with the east-to-west movements of the Karasuk culture at the expense of the Andronovo culture in Kazakhstan.

The relative date of the Sejma and Turbino finds can be established on the basis of comparison with the European and Chinese finds. Similarity between Sejma (fig. 56, *1-4*) and Borodino (pl. 12, *12*, *13*) spearheads indicates that the date must be not too far from 1450 B.C. Nevertheless, the synchronism cannot be proved; the spearheads from Borodino and from Sejma are very similar but not identical. The inward-curved knives offer us a key for the correlation of the Sejma finds with the dates of Shang China. As we have already mentioned, the Sejma, Turbino,Tomsk, and Irkutsk knives, although not identical with the knives from Anyang cemetery, exhibit a close relationship. Finds related to the Anyang type, such as the daggers and accessories for bows from the cemetery of Tomsk, are a connecting link between Sejma, Turbino, and Anyang. Geographically it is about halfway between central Russia and northern China. Hence it is very likely that the Sejma period in Russia is chronologically close to the early Yin period of the Shang dynasty. The recorded dates for the Yin period, confirmed by inscriptions on oracle bones in the cemetery of Anyang as accepted by the Chinese archaeologists, are from *ca.* 1400 to 1050 B.C. (for the beginning of Chou the date 1027 B.C. is shown by reconstructed bamboo annals; the traditional date was 1122 B.C.). According to Li Chi, the excavator of Anyang (personal

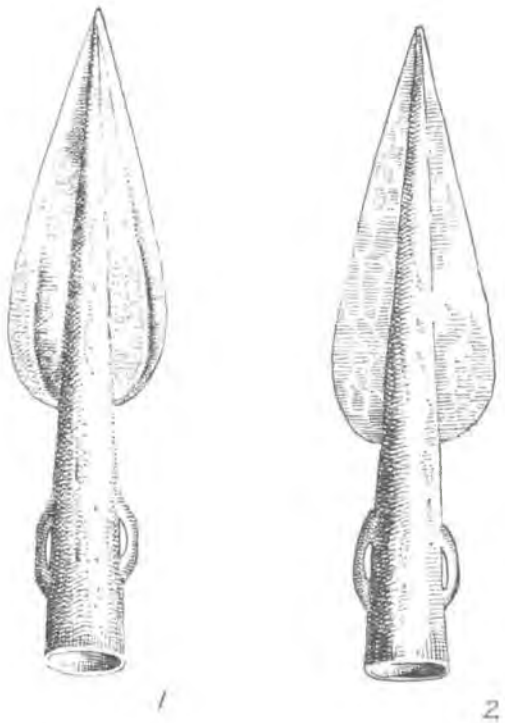


FIG. 65. Spearheads from England and Poland. **1**, Thetford, Sussex; **2**, Skowarcz near Gdansk (Danzig), northern Poland. Scale approx. 1/3. *After* Evans, 1881 (**1**), and Šturms, 1936.

information in 1954), as well as Karlgren (1945, p. 139), the inward-curved knives with animal heads in Anyang must have existed already at the beginning of the Yin period, the fourteenth century B.C. It is possible that the Sejma and Anyang knives had a parallel development, as did the socketed celts and spearheads.

The parallels above indicate that the Sejma, Turbino, and other contemporary finds may date from the period between 1450/1400 B.C. and 1300/1250 B.C.

In the south, contemporary with Sejma-Turbino, was the Timber-grave culture of the Pokrovsk phase mentioned below. Another contemporary in the southwest was Monteoru II in eastern Rumania. The latter is parallel to Pokrovsk on one hand and with central European cultures dated with the period *ca.* 1450-*ca.* 1250 B.C. on the other.

2. *The Pokrovsk assemblage of the Timber-grave culture and its affinities*

The appearance of spearheads of Sejma type in the lower Volga area (fig. 69, *1*, *2*) demonstrates that the Timber-grave culture of the Pokrovsk phase is contemporary with the Sejma assemblage of central Russia, the Turbino assemblage in the Kama River basin, the middle Gorbunovo culture in the middle Urals, and the Andronovo culture of the Alekseevskoe phase in the region east of the southern Urals. The type site is the cemetery of Pokrovsk, in the district of Saratov, lower Volga region. It was excavated by Rykov in 1924 and 1925 (Rykov, 1927). Associated with the spearheads in the kurgan of Pokrovsk were: broad copper dagger or knife blades with tangs for attachment to wooden hilts (fig. 69, *3*, *4*); copper needles; small hollow copper earrings of lunar form tied in three's; concave (hollow) arm-rings with closed or overlapping ends; folded copper plates; plain pots (fig. 69, *7*) and pots ornamented around the upper part incisions or comb-like impressions forming triangular or rhomboid motifs; numerous

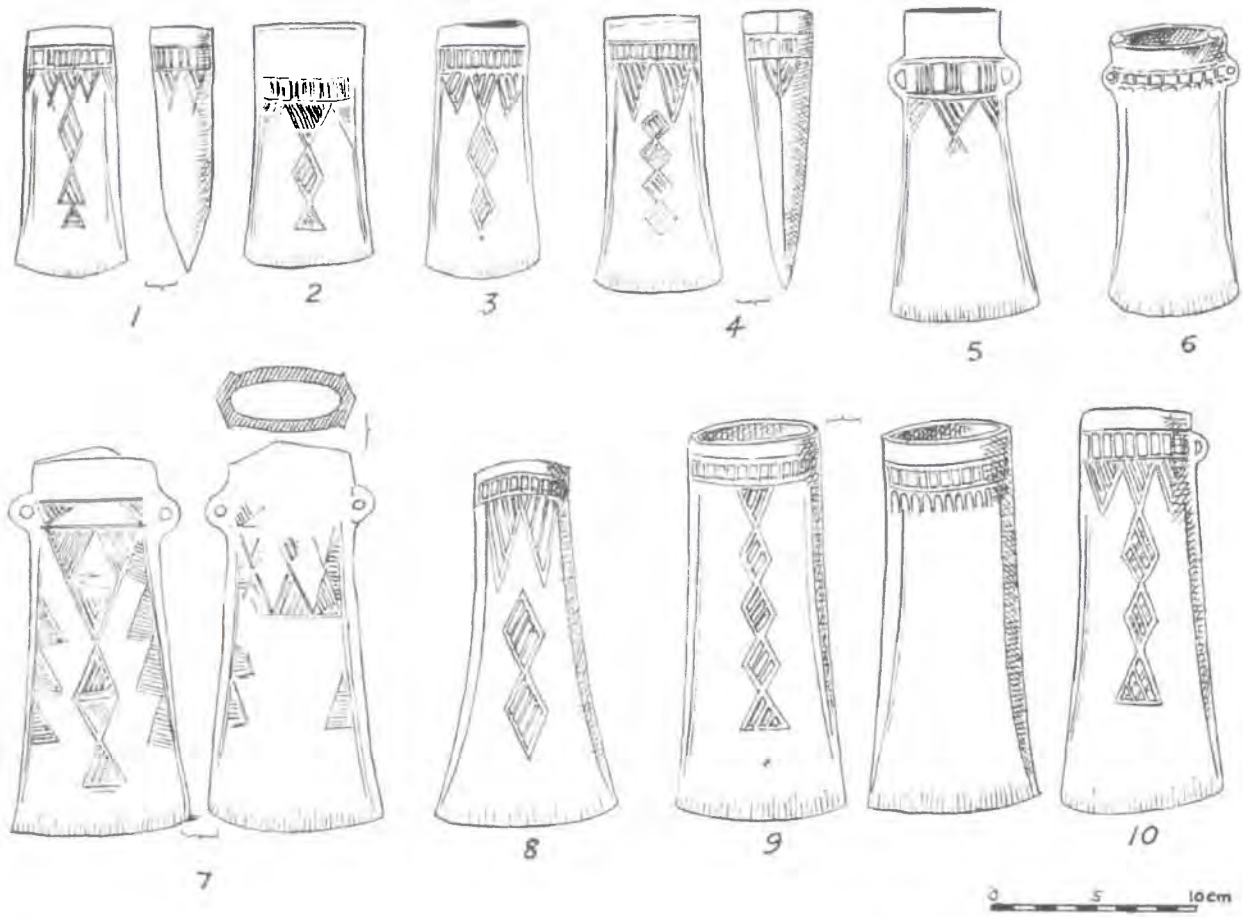


FIG. 66. Socketed celts of Sejma type from western Siberia and Russia. **1,** Altai; **2,** Kargalinsk, district of Tarsk; **3,** Bejskoe, 90 km. north of Minusinsk; **4,** Om River, near Omsk; **5,** Itkul, near Bijsk; **6,** Majkapchegaj, district of Zajsansk; **7,** near Vjatka, eastern Russia; **8,** Turbino, eastern Russia; **9,** Sejma; **10,** Ustsysolsk, northern Russia. *After* Grjaznov, 1941 **(1-7)**; Shmidt, 1927 **(8)**; Tallgren, 1926b **(9)**, and 1937 **(10).**

flint and bone arrowheads (fig. 69, *5*, *6*, *9-14*); geometrically decorated "pipes" of bone (fig. 69, *8*). Flint arrowheads are of two kinds here. The tanged ones are similar to those of the Sejma cemetery. The flat-based ones are the same type as those in the Turbino assemblage (fig. 69, *9-14*). Very similar flint arrowheads and copper dagger blades have been found in several other kurgans of the Timber-grave culture. Among them are the kurgan at Skornjakovo near Voronezh (Tallgren, 1926, 6, 71, fig. 46); kurgan No. 11 of the Skatovka cemetery, district of Saratov, where arrowheads in a skin quiver were found in association with a wooden bow (Sinitsyn, 1959).

White annular faïence beads occur in the assemblage in kurgan No. 15 at Pokrovsk and in the Bykovo kurgan in the district of Stalingrad (Smirnov, 1957, p. 214). Beyond the southern Urals, white annular faïence beads appear in the graves of the Alekseevskoe cemetery on the Tobol River (fig. 70, *1*). This cemetery also yielded copper daggers with broad blades (fig. 70, *8*) like those of the Pokrovsk assemblage (fig. 69, *3*, *4*). In addition, the graves contained segmented copper beads (fig. 70, *3*, *4*), ornate silver-plated copper plates, both round and rectangular (fig. 70, *5*), neck-rings and tapered-end bracelets made of folded copper plate (fig. 70, *6*), bracelets and finger-rings with conical spiral ends (fig. 70, *2*), double-spiral pendants, and spiral hair-rings with hollow broadened ends (fig. 70, *7*). The spiral hair-rings, neck-rings, and white annular beads link the Alekseevskoe assemblage of the Andronovo culture with not only the Timber-graves of the Pokrovsk phase but also the northeastern Caucasian Berekej and

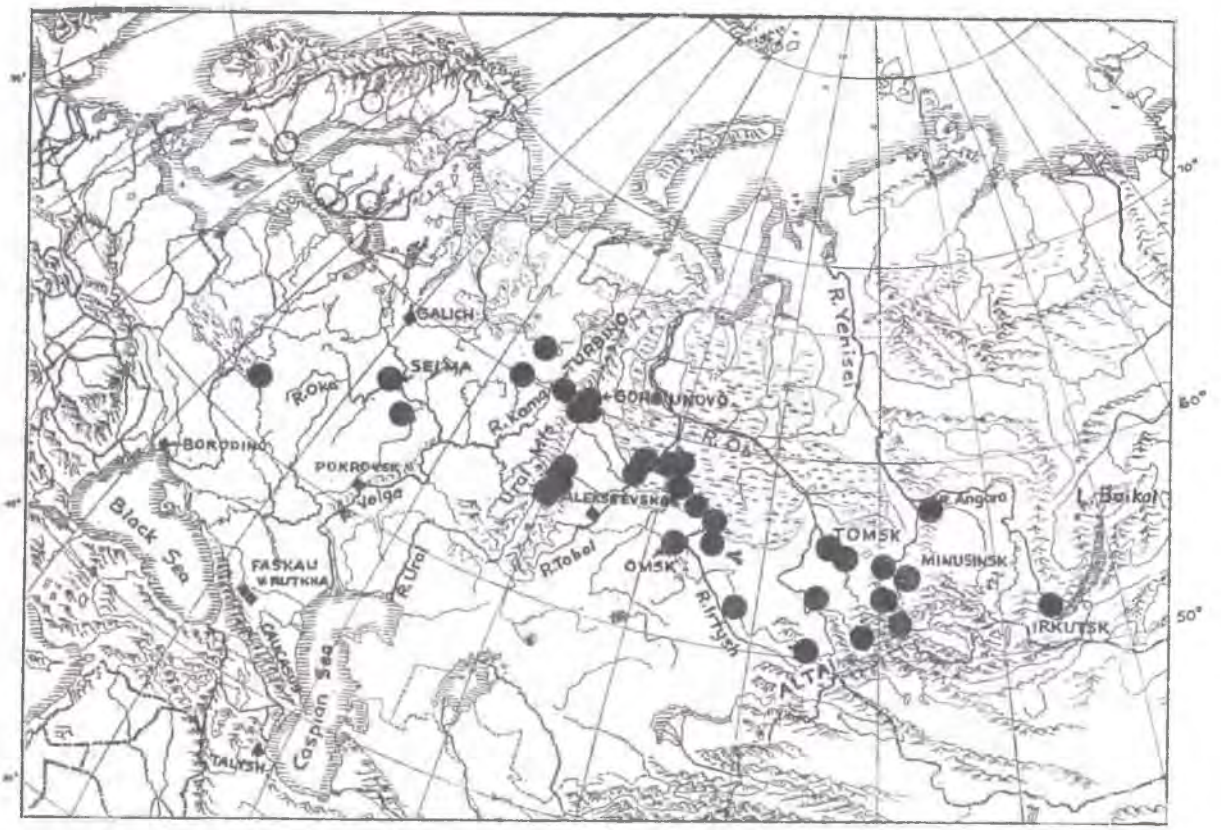


FIG. 67. Map showing distribution of socketed celts of Sejma (●) and Fennoscandian (○) type. ⧫, other sites important for chronology.

Khorochoj assemblage of finds (fig. 47; 341, *B*, *3*, *5*, *9*; Kruglov, 1958, figs. 28, *3*; 55, *3*). The faïence beads and the bracelets and finger-rings with conical spiral ends indicate a relationship to the north, with the Siberian culture of the upper Ob River, where bracelets of this type and white paste beads (both cylindrical and annular) appear in the cemetery of Bol'shoj Mys near Tomsk (fig. 62, *5*, *7*).

Analogies for the Pokrovsk assemblage are present west of the Black Sea in eastern Rumania. In the cemetery No. 1 of Sărata-Monteoru, which belongs to Monteoru IIb, copper daggers of Timbergrave type were found (fig. 156, *1*, *2*). One of the daggers is very similar to the daggers with broad blades from the cemetery of Pokrovsk (fig. 69, *3*, *4*) and to many other daggers from the lower Volga area. In the Monteoru cemetery No. 4, which belongs to Monteoru IIa, a spearhead with an open socket was discovered (fig. 156, *3*). This type of spearhead appears in Pokrovsk alongside the Sejma type spearheads. From this we may deduce that Pokrovsk and Sejma are about contemporary with Monteoru IIa and IIb. The very important stratigraphy of the habitation site and cemeteries on the mound of Monteoru (see below, pp. 222ff.) suggests that the phases of Pokrovsk, Sejma-Turbino, middle Gorbunovo, and of Alekseevskoe of the Andronovo culture are parallel to the Middle Bronze Age of central Europe.

3. *The Abashevo assemblage of finds between central Russia and the southern Urals and its affinities*

Another series of widely spread objects ties in the Abashevo cultural group distributed between the middle Volga and the southern Urals, the Andronovo culture to the east of the southern Urals (of the stage typified by the cemetery of Alekseevskoe), and the Galich hoard in northern Russia. The artifacts

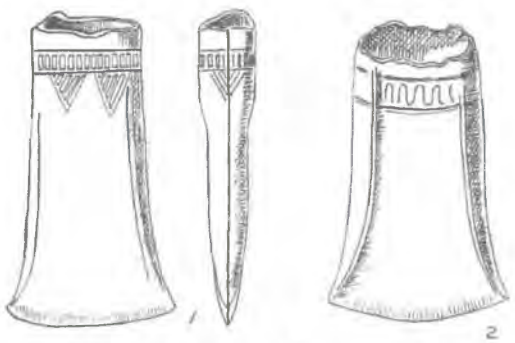


FIG. 68. **1**, socketed celt from Sejma, central Russia and **2**, from Laukaa, Finland. Scale approx. 1/3. *After* Tallgren, 1916.

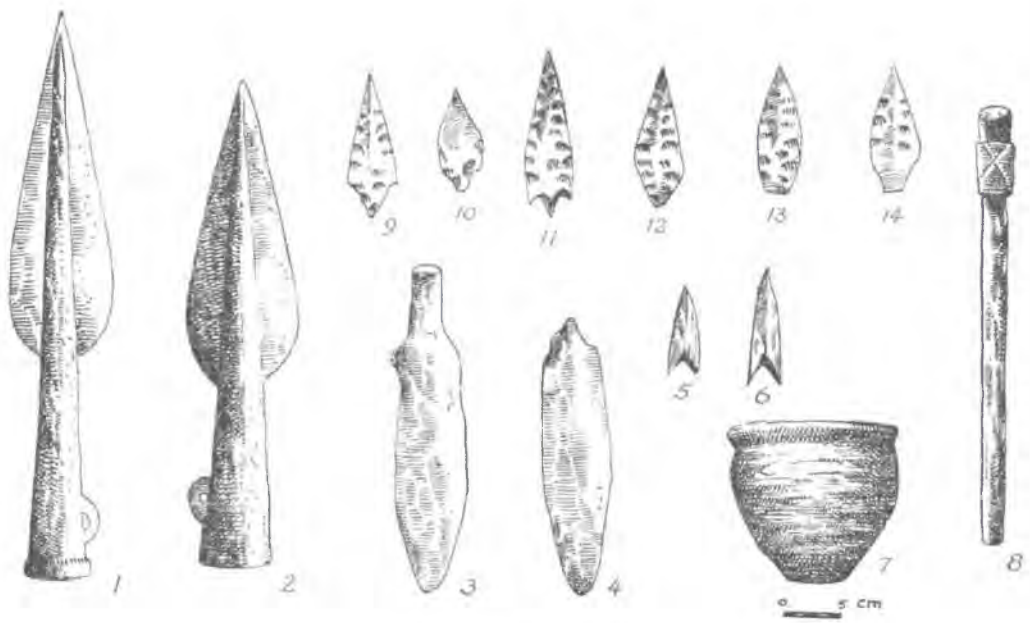


FIG. 69. Timber-grave finds from the cemetery of Pokrovsk, lower Volga area. **1, 2,** spearheads; **3, 4,** daggers; **5, 6,** bone arrowheads; **7,** pot; **8,** bone "pipe"; **9-14,** flint arrowheads. From barrows Nos. 7 and 8. Scale: **1-6, 8-14** approx. 1/3. *After* Rykov, 1927.

of identical nature found in these groups are: pendants with double spirals (fig. 71, *A*, *1*; *B*, *3*; fig. 73, *3*); concave bracelets with tapered ends (fig. 71, *A*, *3*; *B*, *1*; fig. 73, *2*); and copper ornamental plates – usually in the form of rosettes with silver foliage (fig. 71, *A*, *2*; *B*, *2*). At some sites they appear in association with silver spiral rings or hair-rings, silver and copper beads, shaft-hole axes, knives, sickles, gouges, narrow spearheads with open sockets, and daggers with broad blades (cf. figs. 418, 419). The production center for these artifacts very probably lay in the southern Urals.

Copper pendants terminating in a spiral at each end and having a central loop connecting the spirals were worn attached to faïence or glass bead necklaces (fig. 71, *B*, *3*). Similar necklaces consisting of small round beads and one double-spiral pendant are known from the Near East. The sculpture of the "Phoenician deity with Tiara" (Louvre Museum) wears such a necklace with a double-spiral pendant at her throat (fig. 72). This statuette has been assigned to the fourteenth-thirteenth centuries B.C. (*Encyclopedie photographique de l'art*, vol. II, p. 100, *c* and *d*; Schaeffer, 1939, p. 133, fig. 117). The double-

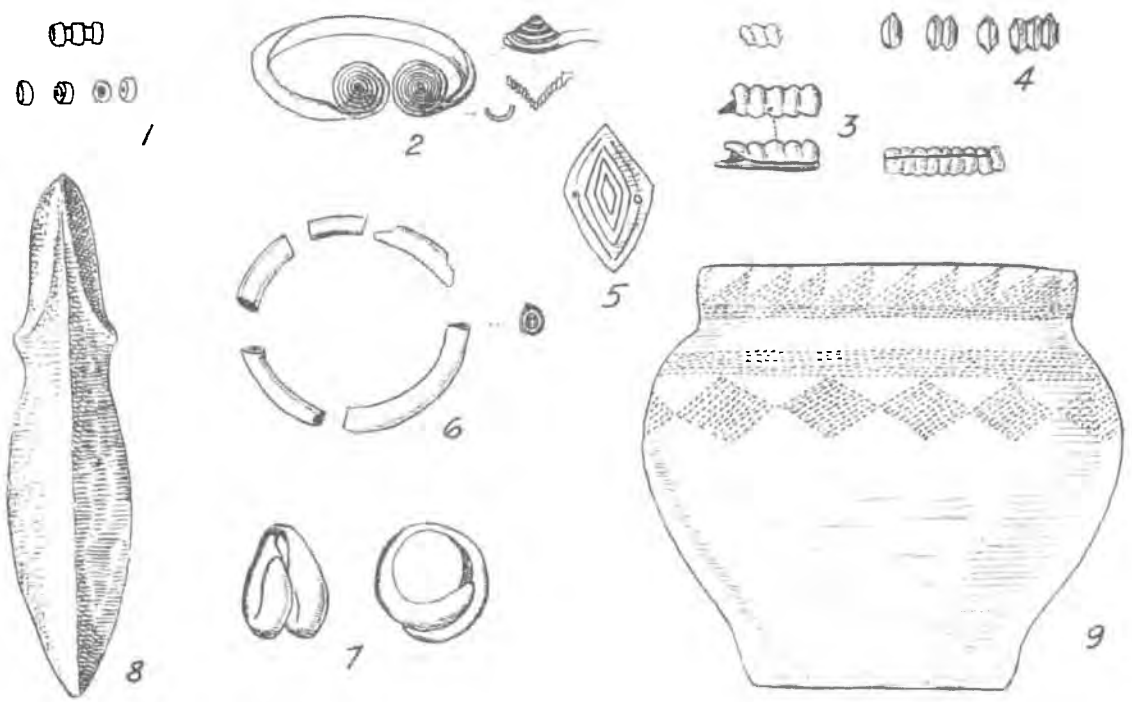


FIG. 70. Grave inventory of the Andronovo culture, southwestern Siberia. Alekseevskoe cemetery near Kustanaj, upper Tobol. **1,** white faïence beads; **2,** bracelet with conical spiral ends; **3, 4,** copper beads; **5,** decorated copper plate; **6,** hollow bracelet; **7,** hair-rings; **8,** copper dagger; **9,** pot. Scale: **1, 3-5, 7,** 1/1; **2,** 5/8; **6,** 2/3; **8,** 2/5; **9,** 1/3.
After Krivtsova-Grakova, 1929.

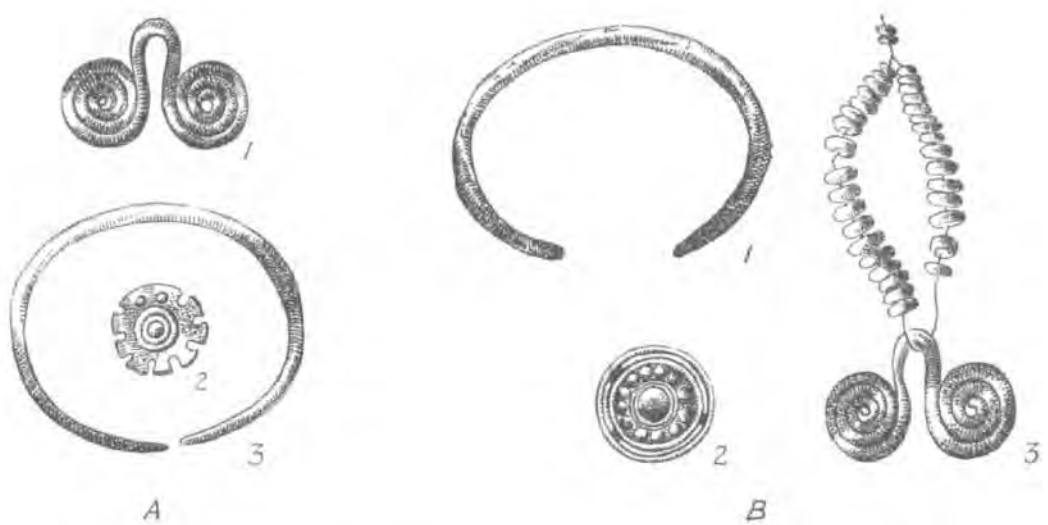


FIG. 71. Abashevo (eastern central Russia) and Andronovo (western Siberia) grave finds. *A:* **1,** double-spiral copper pendant; **2,** ornamental copper plate with silver plating; **3,** bracelet with tapered ends, from the cemetery of Abashevo, middle Volga. *B:* **1,** bracelet; **2,** rosette-shaped ornament of copper with silver plating; **3,** blue glass bead necklace with a double-spiral pendant, from a grave at Lake Alakul, east of the southern Urals. Scale approx. 2/3.
After Krivtsova-Grakova, 1947 (*A*), and Salnikov, 1952 (*B*).

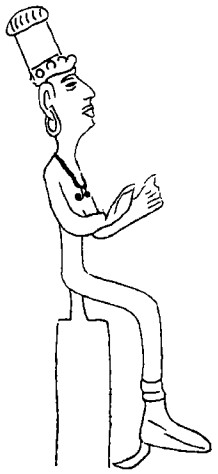


FIG. 72. Phoenician deity with tiara. Louvre Museum. *After* Contenau, 1926.

looped spiral occurred in Mesopotamia as early as the Third Dynasty of Ur and lasted over a long period. It was known there as a divine symbol and it is often found associated with the mother goddess. Double-spiral pendants cannot be used as precise time-markers because they were in use throughout many centuries in the Near East and the Caucasus. However, their distribution in the two regions suggests that they very likely spread from the south to the area of the southern Urals and even north of it.

Circular copper plates covered with silver foliage, decorated with embossed ornaments forming a rosette enclosed within concentric circles (fig. 71, *A*, *2*; *B*, *2*), illustrate fine jewelry-making techniques. These ornaments were produced in the southern Urals, as traces of metallurgy in habitation sites indicate, but the idea underlying their manufacture may have diffused into the region from the south. In the large barrows of Trialeti in Georgia, Transcaucasia, one encounters gold and silver ornaments which demonstrate advanced techniques of manufacture in their filigree work, granulation, embossing, etc. Among the rich Trialeti ornaments are found the closest analogies of the southern Ural and north Russian silver rosettes (cf. Kuftin, 1941, pl. CIII). Contact between the southern Urals and the Caucasus is evidenced by other artifacts as well: spiral rings found in the Trialeti barrows and in the southern Urals are of related form, and the spearheads with open sockets and narrow leaf-shaped blades from Abashevo sites have parallels in the northeastern Caucasus, southern Caucasus, and in northern Iran.

4. *The Galich hoard of northern Russia*

The famous Galich hoard found near Kostroma, northeast of Moscow, was discovered as early as 1835. It is believed to have been discovered in a pot containing five copper idols of human form, one small animal figure, one plate terminating in animal heads, two daggers with handles of snake-like form and a smaller snake depicted on the handle, two small, flat, double-edged "knife-daggers" with backward-curved points, 11 round copper plates, one double spiral made of copper wire, three concave bracelets, small beads of copper, silver buttons, silver beads, etc. (figs. 73, 74). The Galich finds were widely described and mentioned by many authors (Aspelin, 1877; Spitsyn, 1903; Tallgren, 1911, 1925, 1926b; Gorodtsov, 1928). The hoard was considered to be one of the earliest and most interesting in northern Russia and was assumed to belong to the Sejma period. However, the conditions of its discovery are not known in detail, and it is not certain that all the bronze, copper, and silver objects came from one pot. After more than 100 years of archaeological research, the Galich "hoard" remains a puzzle, for some of its objects, such as the copper idols (fig. 74), are unique, being without analogies either in Russia or elsewhere. It is nevertheless clear that the pendant with spiral ends (fig. 73, *3*) and the bracelets with

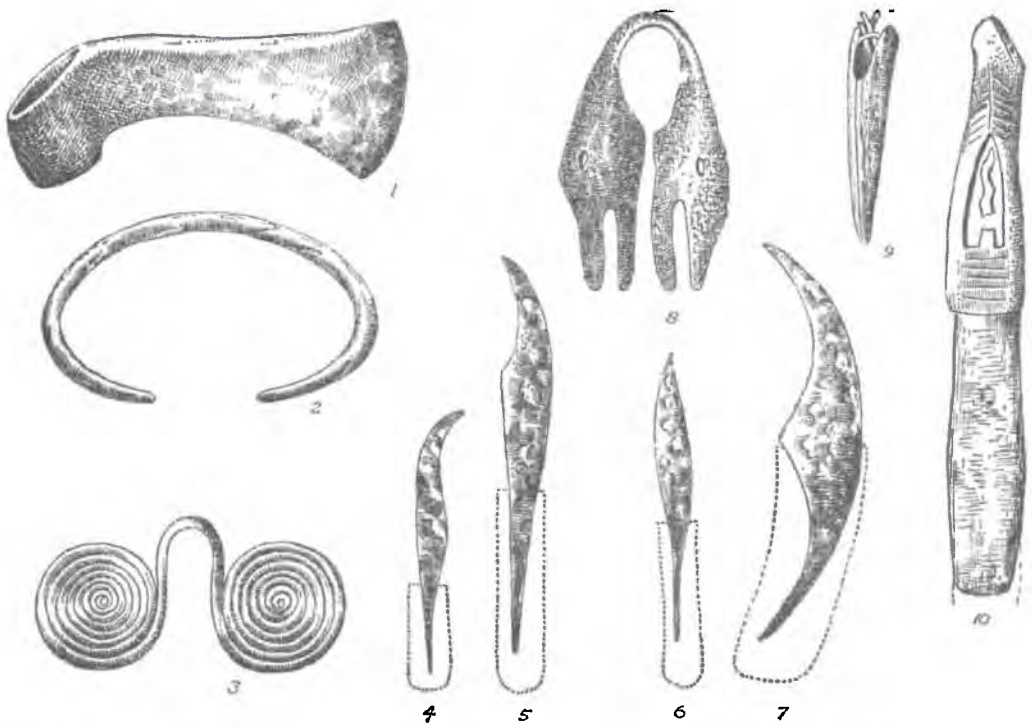


FIG. 73. Finds from the hoard of Galich, near Kostroma, northern Russia. **1,** copper axe; **2,** bracelet; **3,** double-spiral pendant; **4-7,** copper knives; **8,** stylized animal heads, of sheet copper; **9,** snake's head figurine; **10,** copper dagger (handle and part of blade) with handle in snake form and a smaller snake figure in the middle.
Scale: **1, 4-7, 8-10,** 1/4; **2, 3,** 1/2. *After* Tallgren, 1911 and 1916.



FIG. 74. Copper idols from Galich. Scale approx. 1/2. *After* Aspelin, 1877.

tapered ends (fig. 73, *2*) may be contemporaneous with the Abashevo assemblages. The shaft-hole axe (fig. 73, *1*), and the dagger with a snake figure on the handle (fig. 73, *10*) show forms current during the Sejma phase.

5. *Conclusions*

Intensive commerical relations between Russia and Siberia speak for the following chain of contemporary cultures:

In southern Russia (lower Volga area): Timber-grave culture of Pokrovsk phase.

In southwestern Siberia: Andronovo culture of Alekseevskoe phase.

In eastern central Russia and southern Urals: Abashevo phase of the Fat'janovo culture.

In northeastern Russia and the middle Urals: Sejma phase of the Turbino culture. Middle layer in Section 6 of the Gorbunovo site in the middle Urals.

In southern Siberia (Altai, Yenisei basin): Karasuk culture.

In China: The beginning of the Yin period of the Shang Dynasty.

In eastern central Europe: Monteoru II in Moldavia.

III

LATE BRONZE AGE

Ca. 1250 B.C. – *ca.* 750 B.C.

Late Bronze Age chronology of Europe is chiefly based on intimate contacts between the central European early Urnfield culture and Greece during the end of the Late Helladic period and between the late Urnfield culture and Previllanovan and Villanovan culture of Italy.

The chronological classification of the central European Urnfield culture is of utmost importance for Late Bronze Age chronology of all Europe. This chapter is almost entirely dedicated to the designation of separate Urnfield phases. In the following text the reader will find my subdivision of the Urnfield period into five phases, Urnfield I-V. This simple nomenclature will be used instead of the complicated and confusing labels Phase D, Hallstatt A_1, A_2, B_1, and B_2, applied for the North Alpine Urnfield culture. My Urnfield I-V approximately correspond with the traditional labels (as they for example were used by Müller-Karpe, 1959) as follows:

Urnfield I for Phase D
Urnfield II for Hallstatt A_1
Urnfield III for Hallstatt A_2
Urnfield IV for Hallstatt B_1
Urnfield V for Hallstatt B_2

A. LATE BRONZE AGE CONTEMPORARY WITH THE FINAL LATE HELLADIC PERIOD IN GREECE

1. *Parallels between central Europe and Greece during the end of the Late Helladic III B and III C periods*

a. *Central European flange-hilted swords, daggers, spearheads, median-wing axes, violin-bow fibulae, and other finds in Late Helladic III B-C_1 Greece and in contemporary Italy*

A series of central European bronze types appeared in Greece and Crete during the second half of the thirteenth century B.C. Among them were flange-hilted swords, flange-hilted daggers, socketed spearheads, median-wing axes, arm-rings with spiral-plate ends coiled in opposite directions, and simple violin-bow fibulae.

Central European swords have been found in several locations in Mycenae. One was excavated by Schliemann in the Late Helladic III house within the Cyclopean walls, south of the Grave Circle (pl. 19, *1*). The second came from the Acropolis in 1880 (Catling, 1957, p. 111), and the third was found by Tsountas in the hoard on the Acropolis (Tsountas, 1897, p. 110). Two others came from Kallithea, the Late Helladic III cemetery near Patras (Kyparisses, 1938, pp. 118-19; Catling, 1957, p. 111; Vermeule, 1959). The specimens found in Mycenaean contexts are not favorable for close dating, but the association of two swords with Late Helladic III B pottery at Kallithea (probably at the close of the phase) permits a narrow dating to within a decade of 1230 B.C. (Vermeule, 1959). Each of the Kallithea swords were discovered in a separate chamber tomb. They measure 82 cm. and 66 cm. Both have pronounced hand

guards with downward sloping shoulders, small pommel ears, a small spur, and two "blood channels" running along the edges. The hilt plates of the first were secured by ten rivets, of the second, by eight. Blades are straight. The longer sword was found in association with knives, socketed spearheads having plain blades, and bronze greaves (pl. 18, *1*, *3-7*). The Kallithea greaves (pl. 18, *7*) although clearly related to central European types (cf. fig. 236, *1* and pl. 68, *5*, dated by Merhart to *ca.* 1100 B.C.) are still the earliest known examples. The Kallithea spearheads are not Helladic forms but of a general central European type which began in late Únětice times and persisted throughout the thirteenth century B.C. The swords from Mycenae and from Kallithea have close parallels in central Europe (compare the swords from Sajó-Gömör, northern Hungary: fig. 75, *1*, *2*).

During the last decades of the thirteenth century flange-hilted swords closely paralleled in central Europe appeared not only in mainland Greece, but also in the Dodecanese Islands, Cyprus, Syria, and Egypt (Catling, 1957, figs. 1, 2; Maxwell-Hyslop, 1957, p. 139, fig. 6). A sword found in the Egyptian delta bore the cartouche of Seti II (1217-1211 B.C.).

Another find showing connections between central Europe and Mycenaean Greece is a stone mold for a median-wing axe found at Mycenae in 1952 by A. J. B. Wace (pl. 19, *2*). The mold lay in the so-called "House of the Oil Merchant", dated by its pottery to Late Helladic III B (Wace, 1953, p. 15, pl. 9, *b*). At the settlement of Scoglio del Tonno near Taranto, in Apulia, southern Italy, a median-wing axe is thought to be contemporaneous with the Late Helladic III B or C_1 pottery of the same site (Peroni, 1956b, pl. 6; Müller-Karpe, 1959, pp. 32 ff., Tafel 13, *12*). Median-wing axes from Mycenae and from Scoglio del Tonno show an unquestionable similarity to the median-wing axes of the earliest Urnfield phase in central Europe. Hundreds of such axes are known from Austria, northern Yugoslavia, western Hungary, western Slovakia, and Moravia. Their greatest concentration in the middle Danube basin undoubtedly represents a region of local manufacture. The Želiezovce hoard, western Slovakia, included a median-wing axe mold very similar to the Mycenaean example (pl. 19, *3*), and another mold for dagger blades with triangular tangs (pl. 19, *4*). Tanged and flange-hilted daggers frequently accompany median-wing axes in central European early Urnfield assemblages. In Italy they were found in the lake dwelling site at Peschiera (Müller-Karpe, 1959, Tafel 106-07). A great number of median-wing axes appeared in the eight hoards discovered in the settlement on the hill of Blučina-Cezavy near Brno, Moravia. One of the hoards in addition to a median-wing axe (fig. 76, *2*) contained a dagger having a hilt with a rivet hole (fig. 76, *1*), a spiral arm-band (fig. 76, *3*), and a flame-shaped spearhead (fig. 76, *4*). The dagger has close analogies in the early Peschiera horizon of the lake dwelling site in north Italy and also in the above mentioned site of Scoglio del Tonno near Taranto. The flame-shaped spearhead is similar to spearheads found in Kalbáki (fig. 79, *2*) and Ithaka (fig. 80, *1*, *2*) in Greece. Other parallels for the median-wing axe type that suits the mold of Mycenae are known from good collections of bronzes in the hoard of Sajó-Gömör (fig. 75, *5*) and in the royal burial of Čaka in western Slovakia (pl. 21, *6*, *7*).

The homeland of the median-wing axe is central Europe. It appeared in the late Únětice period (Phase A_2) and lasted throughout the whole second half of the second millennium B.C. The earliest examples had a graceful body and low wings in the middle (fig. 179, *3*; pl. 48, *9*). Toward the middle of the thirteenth century more robust forms with well-developed wings for hafting purposes were the most popular tools of the central European Urnfield people. They must have spread to Greece and Italy at the same time as central European swords, spearheads, daggers and other objects.

The simple type of violin-bow fibulae in Greece belongs to Late Helladic III B (Furumark, 1941, p. 91, type I: 1-4; Milojčić, 1950, p. 16, fig. 1, *8*, *9*; 1955a, p. 165). Several of them were found in Mycenae (fig. 77). Numerous examples also appear in the north Italian sites, as in lake-dwelling Peschiera, hence their name "Peschiera fibulae". Among the other sites in Italy and Sicily that have yielded violin-bow fibulae is Valledomo near Caltanissetta in central Sicily (Peroni, 1956b, pl. 8, *B*).

The violin-bow fibulae in central Europe are known from graves containing other bronze objects

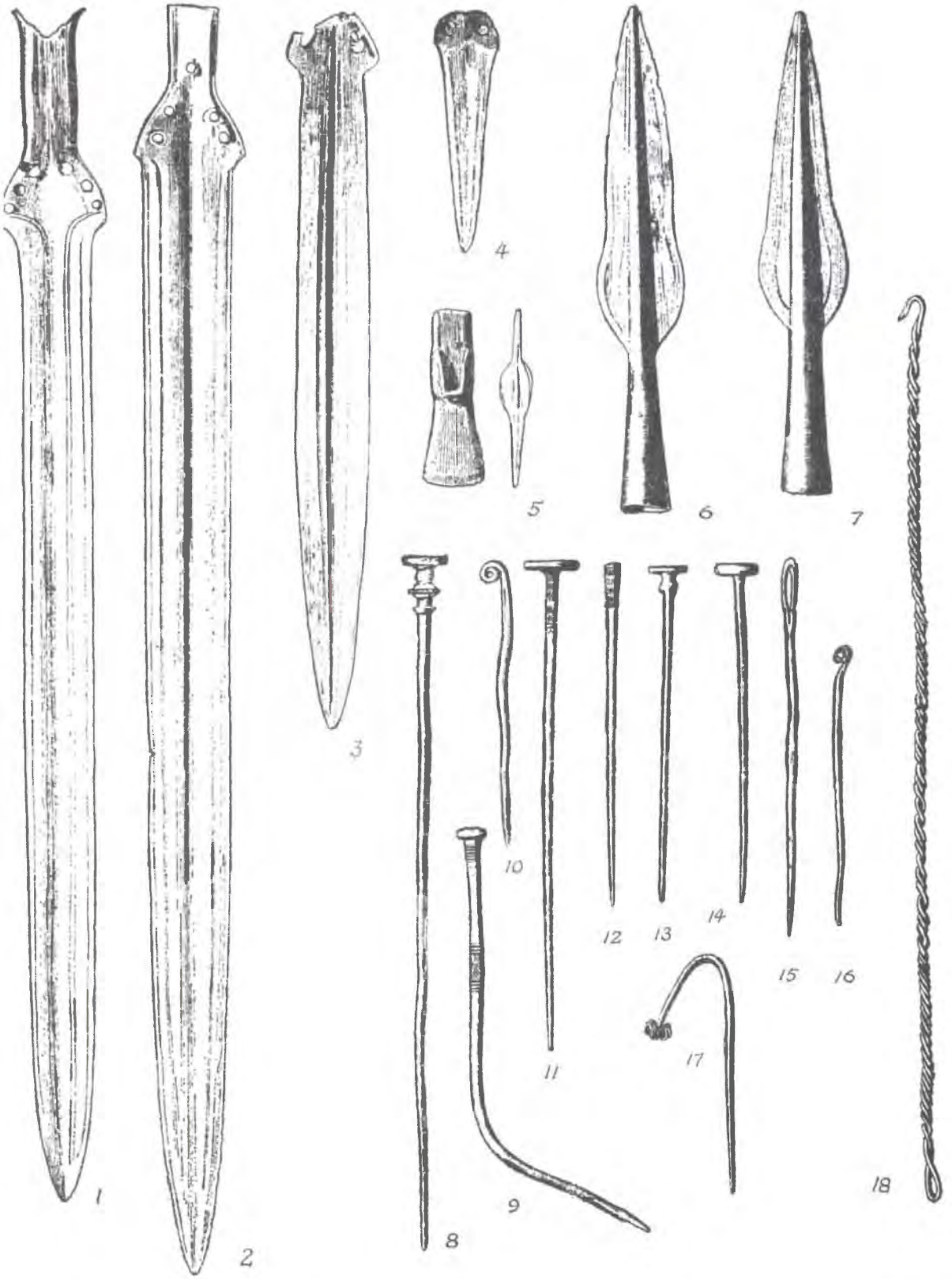


FIG. 75. Bronze types from the hoard of Sajó-Gömör, northern Hungary. **1, 2,** flange-hilted swords; **3, 4,** dagger blades; **5,** median-wing axe; **6, 7,** flame-shaped spearheads; **8-17,** pins; **18,** twisted wire. Scale approx. 1/4. *After* Hampel, 1887.

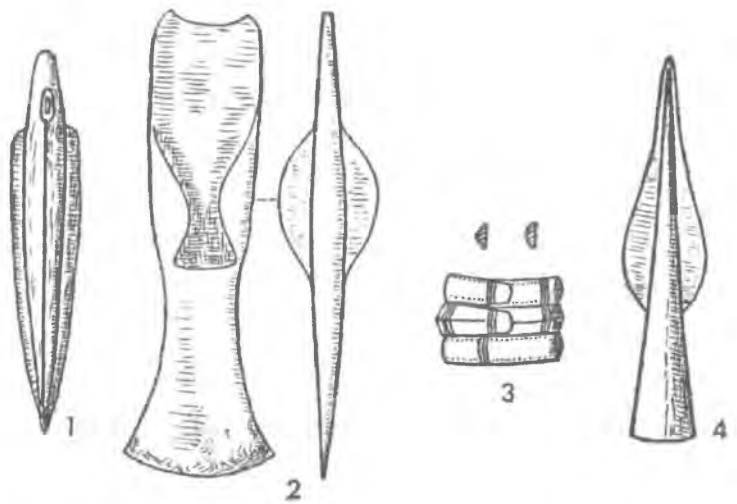


FIG. 76. **1,** dagger; **2,** median-wing axe; **3,** spiral arm-band; **4,** flame-shaped spearhead from Blucina-Cezavy, district of Brno, Moravia. Hoard No. VI. Scale approx. 1/3. *After* Říhovský, 1962.

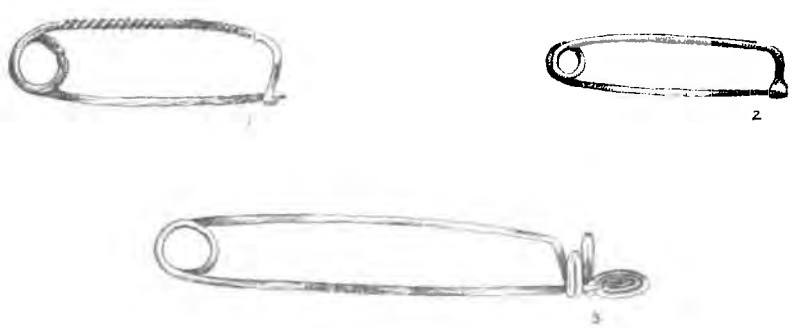


FIG. 77. Violin-bow fibulae from Mycenae.
Scale approx. 1/2. *After* Montelius, 1924.

current in Urnfield I period. The earliest specimens were rather massive and had the arc decorated with clusters of striations. The same decorative motifs are found on bracelets and on the necks and heads of pins pointing to a central European origin of the violin-bow fibulae. In a cremation grave at Gross-Mugl, lower Austria, this type of violin-bow fibula (fig. 78, *1*) was found in association with pins having profiled heads and decorated with clusters of striations and zigzags (fig. 78, *10-12*), tanged knives with a crescent-shaped blade (fig. 78, *2-4*), a bronze arrowhead with a barb at the socket (fig. 78, *9*), a biconical bronze bead (fig. 78, *5*), a pottery vase with striations over the lower part (fig. 78, *8*), a bronze vessel (fig. 78, *6*), and bracelets (fig. 78, *13, 14*). Violin-bow fibulae of similar type occur also in Bosnia, Yugoslavia. In one grave of the cemetery of Štrpci (tumulus I, grave 1), a violin-bow fibula with the arc decorated with clusters of striations was found together with banded bracelets (fig. 232*B*, *2*); other close parallels are illustrated in fig. 232*A*, *1* and *2*, and fig. 232*B*, *1*).

Central European connections with Greece are also indicated by finds in Ioánnina at Kalbáki in Epirus, (fig. 79). There, in one grave, Tomb B, were found bracelets with spiral-plate ends coiled in opposite directions (fig. 79, *8, 11-15*), bronze tweezers (fig. 79, *10*), and beads of amber, rock crystal. and chalcedony (fig. 79, *3-7*). In another grave, Tomb A, were found a Mycenaean dagger with a flange-hilted crescent-shaped end and a blade having three pairs of parallel grooves (fig. 79,*1*), a flame-shaped spearhead (fig. 79, *2*) and a knife (fig. 79, *9*). The excavator, Dakaris (1956), places the tombs in

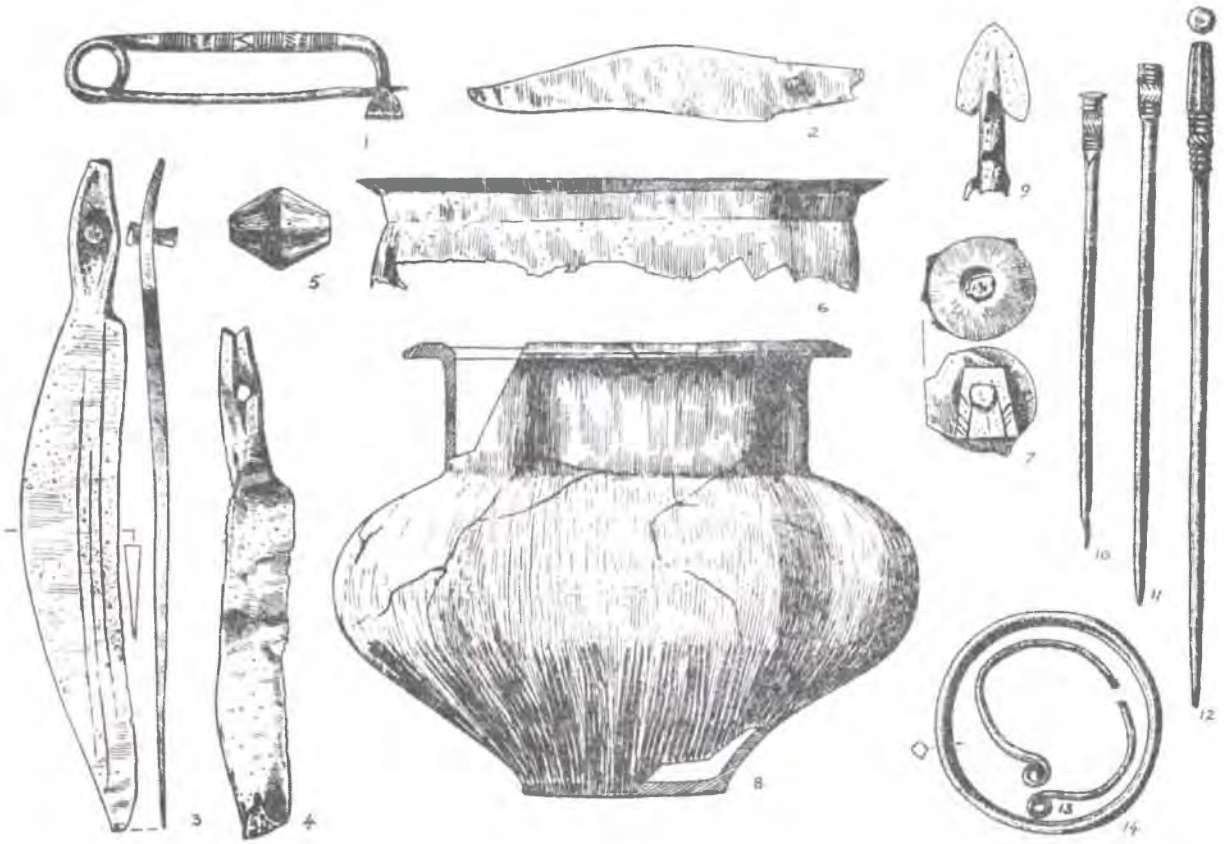


FIG. 78. Grave inventory from a cremation grave in Gross-Mugl, west of Vienna north of the Danube, lower Austria. **1,** violin-bow fibula; **2-4,** knives; **5,** bronze bead; **6,** upper part of a bronze vessel; **7,** rivet with plates of the bronze vessel as seen from outside and inside; **8,** pottery vase; **9,** bronze arrowhead; **10-12,** pins; **13,** bracelet with spiraled ends; **14,** solid bracelet. Scale: **1-5, 9-14,** 1/2; **6-8,** 1/4. *After* Angeli, 1959.

the end of the thirteenth century B.C. The finding of central European types of bracelets with amber beads strengthens the case for a northern origin. Bracelets with spiral-plate ends coiled in opposite directions had been popular ornaments in central Europe since the Middle Bronze Age. They are amply represented in the late Tumulus period (pl. 52, *bottom left*), which must precede the middle of the thirteenth century B.C., and they persisted in Urnfield I, as indicated by bracelets of the same type in the hoards of Blučina-Cezavy (Říhovský, 1961, p. 117, fig. 8, *2*). Amber necklaces of biconical beads in central Europe appear in the late Tumulus and in Urnfield *I* phases (pl. 54; fig. 195, *A*, *18*).

In addition to the flame-shaped spearhead from Kalbáki, another was found at Polis on Ithaka (fig. 80, *1*). Together with it were nine small spearheads having plain, not profiled, wings (like that in fig. 80, *2*), a flange-hilted sword and knives of Mycenaean type, all fragmentary. This group of bronze objects was not found in the excavation but is said to come from Polis (Benton, 1938, p. 71). During the excavation of 1930 there was discovered a great deal of Late Helladic III B and Late Helladic III C pottery. The spearheads and sword from Ithaka may belong to the same series of central European objects in Greece at about 1230 B.C.

Among other finds which may show ties between the eastern Mediterranean area and central Europe is an isolated find of a belt plate from Syros in the Cyclades. On it a solar symbol is shown next to a male animal (horse?) and accompanied by a human winged figure, all worked in dotted-line technique (fig. 81, *1*). The human figure is very much like the terracotta figurines current in Greece during Late Helladic III, particularly Late Helladic III C_1 (1230 B.C. – 1200 B.C. in Furumark's scheme: Furumark,

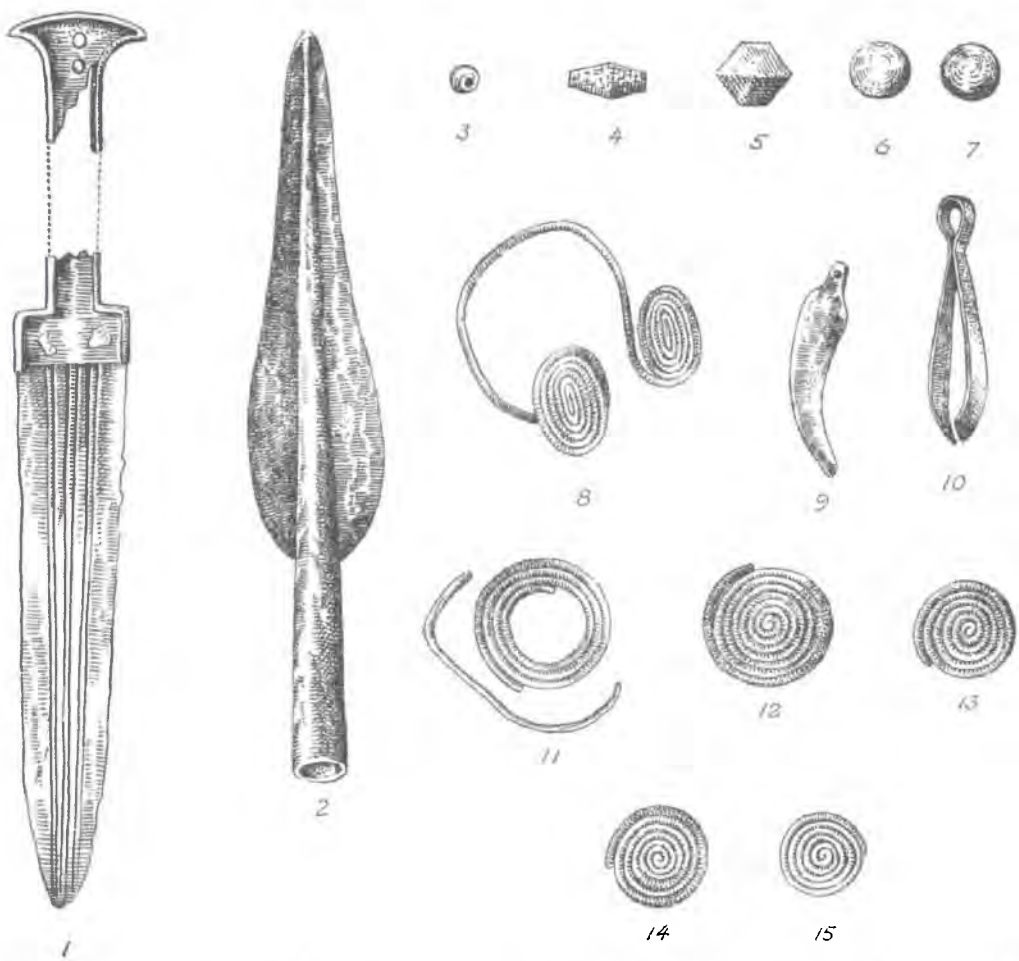


FIG. 79. **1,** Mycenaean dagger; **2,** central European spearhead; **3,** bead of amber; **4, 5,** beads of chalcedony; **6, 7,** beads of rock crystal; **8,** bracelet; **9,** knife; **10,** tweezers; and **11-15,** fragments of spiral-plate bracelets from Tombs A and B near Kalbáki in Ioánnina in Epirus, Greece. Scale approx. 1/2. *After* Dakaris, 1956.

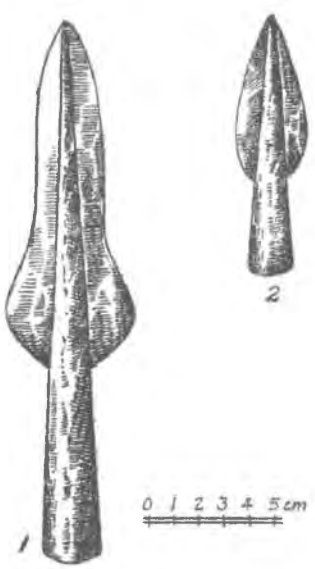


FIG. 80. **1, 2,** spearheads from Ithaka, Greece. Central European types. *After* Benton, 1938.

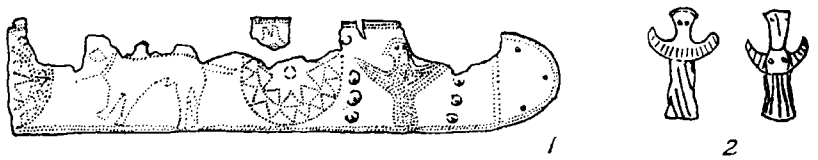


FIG. 81. **1**, belt plate from the island of Syros and **2**, terracotta figurines from Late Helladic III C period. Scale: **1**, approx. 1/2, **2**, approx. 1/4. *After* Déchelette, 1910 (**1**), and Furumark, 1941 (**2**).

1941, p. 115; fig. 81, *2*). Solar emblems, star-shaped or consisting of concentric circles or spirals, were abundant during this period in central and northern Europe. They appear as pendants, on the heads of pins, embossed on belt plates or diadems, and elsewhere. From the viewpoint of symbolism, a good parallel to the Syros belt plate is the Trundholm wheeled sun disc from Denmark preceded by a horse, dating from the end of Montelius Period II of the Northern Bronze Age. It is not improbable that the specific grouping of symbols on the belt plate from Syros had originated under central European influence.

At the end of the list of central European finds in Greece must be mentioned the treasure of Tiryns found accidentally in 1915 (Karo, 1930). It contained objects of various periods, ranging very probably from the early Mycenaean to Protogeometric times and is considered to be a grave robber's hoard. In addition to the artifacts of local origin, there were two flange-hilted swords of central European type. One was extremely long, 81.3 cm, and the other, 55 cm (pl. 20, *3*, *4*). Peculiar finds were wheel-shaped objects of a plaited gold wire within which amber beads, slightly biconical or cylindrical with a mid-rib, were mounted on rods placed crosswise (pl. 20, *1*). They are foreign to the Mycenaean world (Karo, 1930, p. 139). Similar cylindrical amber beads were found in the graves of Kephallenia in association with the pottery of Late Helladic III B-C type and flame-shaped spearheads (fig. 82). This indicates a date before or around 1200 B.C. (Marinatos, 1960, p. 152). In the Lipari islands cylindrical amber beads with a mid-rib, some of which are identical to the Tiryns beads (Bernabó Brea and Cavalier, 1961, pl. LXIII, *1*) appeared in an Ausonian II grave, in a context including an arc-fibula from about the twelfth-eleventh century B.C. Hence, the amber beads in the hoard of Tiryns seem to be from the later part of the twelfth century B.C. The swords are probably earlier since they are of early Urnfield type in central Europe. The Tiryns treasure included also pendant bird figurines adorning the tripod (pl. 20, *2*). The resemblance between the birds of Tiryns and central European birds of the Urnfield times is undeniable.

The contacts of the central European peoples with Mycenaean Greece during Late Helladic III B and C_1 are of great importance in establishing a basis for absolute dating of central European assemblages. The wide distribution of bronze artifacts in the area between the eastern Mediterranean and central Europe enables us to synchronize the central European Urnfield *I* culture with the end of Late Helladic III B and with Late Helladic III C_1 phases. Such diagnostic finds are: flange-hilted swords, flange-hilted daggers, socketed flame-shaped spearheads, median-wing axes, and simple violin-bow fibulae. To which central European assemblages do these finds belong?

b. *Central European bronze types corresponding to the end of Late Helladic III B and C_1 in Greece. Urnfield* I, *from ca. 1250 to the beginning of the twelfth century* B.C.

The people who brought to or supplied late Mycenaean Greece with central European bronzes were the descendants of the powerful Tumulus people who dominated the whole of central Europe in the fourteenth and the early thirteenth centuries B.C. From the middle of the thirteenth century B.C. the culture between eastern France in the west and Transylvania in the east is labeled "early Urnfield" because cremation and burial in urns became ubiquitous.

Central European bronzes found in the Late Helladic III B sites belong to the assemblages of finds which immediately succeed the late Tumulus culture.

In the middle Danube area, in northern Yugoslavia, Hungary, Austria, western Slovakia, and southern Moravia, this is the Čaka or early Velatice phase of the middle Danube group. In it we find the largest number of the best parallels for all the central European bronzes found in Greece, Italy, and the East Mediterranean. Outstanding collections of weapons, tools, and ornaments are in the already mentioned hoard of Sajó-Gömör (fig. 75), in hoards found in the habitation site near Blučina on the bank of the Cezavy River in Moravia (fig. 76), and in the royal grave of Čaka in western Slovakia (pl. 21).

The hoard of Sajó-Gömör in northern Hungary contained flange-hilted swords (fig. 75, *1*, *2*); flame-shaped spearheads (fig. 75, *6*, *7*); a median-wing axe (fig. 75, *5*); a short and a long dagger blade (fig. 75, *3*, *4*); a considerable number of pins with disc heads (fig. 75, *8*, *9*, *11*, *13*, *14*), having biconical swellings on the neck (fig. 75, *8*, *13*) or decorated with herring bone pattern and horizontal striations over the upper part (fig. 75, *9*, *11*), with broadening cylindrical heads (fig. 75, *12*) and with small spiral heads (fig. 75, *10*); spiral arm-rings and finger-rings, banded bracelets with tapered ends ribbed or ornamented with vertical and diagonal striations; an ingot torque, a twisted neck-ring (fig. 75, *18*); a tanged sickle; button sickles; small spherical bronze beads; round and convex ornamental plates with a loop; and other finds.

The upper layer of the late Únětice or Věteřov hill-fort of Cezavy near Blučina in Moravia (pl. 43) has yielded hundreds of bronzes found in hoards or scattered among the stones of earlier fortifications. Stratigraphically and typologically the bronzes of Cezavy together with pottery and other finds are shown to belong to one time horizon and are good representatives of Urnfield *I* (finds from four hoards discovered in the site between World Wars I and II and published by Říhovský, 1961; other four hoards are published by Říhovský, 1962; the publication of all the materials from the excavations since 1948 is in preparation for publication by Tihelka); hoard No. VI: see fig. 76). Among the bronzes were flame-shaped spearheads, median-winged axes, and bracelets with spiral plate ends of the same types as those known from the Late Helladic III B sites in Greece, in addition to large numbers of banded bracelets, horizontally ribbed or geometrically decorated; pins with disc heads usually having two or three biconical ribbed swellings in the neck; pins with small globular or biconical heads with thick ribbed or striated necks; round plates having one or two loops on the under part, probably used for horse bridles; dagger blades; tanged and button sickles. In one of the hoards appeared an amber necklace of biconical and cylindrical beads. Amber beads, bracelets with spiral-plate ends and flame-shaped spearheads have very close parallels in the tombs in Ioánnina at Kalbáki in Epirus (fig. 79, *2-4*, *8*), placed at the end of the thirteenth century B.C.

Flange-hilted swords of the type represented in Sajó-Gömör (fig. 75, *1*, *2*) are the typological successors of the Houštka type (fig. 45, *1*; pl. 53, *1*), with less pronounced shoulders. They stand between the Houštka (Sprockhoff's I a) and the Nenzingen (Sprockhoff's II a) type.

The assemblage of bronzes in central Europe contemporary with Late Helladic III C in Greece is characterized by the presence of violin-bow fibulae with spiral catch-plates and a figure-eight bow (pl. 21, *1*; figs. 83, *A*, *1*, 83, *B*, *1*).

Fibulae with a figure-eight bow are frequent in central Europe, especially in Hungary, Slovakia, Moravia, Silesia, and Saxony. Their point of origin lies probably between the eastern Alps and the western Carpathians. In the south several specimens are known from Italy and Greece, where they belong to the end of the Late Helladic period (Furumark, 1941, p. 93). A variant of this type of fibula was found in the Ionian island of Kephallenia (Blinkenberg, 1926, p. 56, I. 13b). In central Europe they probably date from a period around 1200 B.C.

The finds from the royal grave at Čaka near Želiezovce, Slovakia (pls. 21 and 22), can be considered a type assemblage. The rich equipment of the royal personage buried in a large tumulus included a fibula with figure-eight bow (pl. 21, *1*), a pin with a small conical head (pl. 21, *11*), flame-shaped spear-

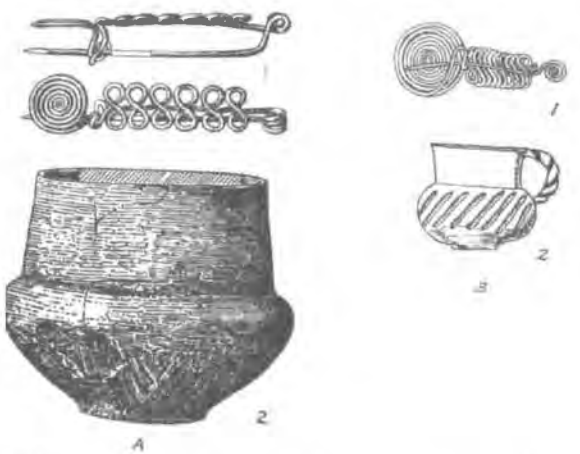


Fig. 82. Fibulae with figure-eight bows and spiral catch-plates and Early Lusatian pots. *A:* Miejsce (Städtel) near Namyslów (Namslau), Silesia, grave find; *B:* from the cemetery at Cosswig, Saxony. Scale: **1** approx. 1/3; **2** approx. 1/5. *After* Pfützenreiter, 1931 (*A*), and Grünberg, 1943 (*B*).

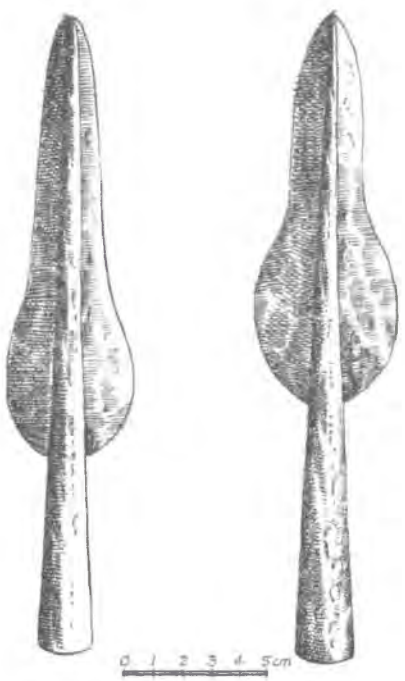


Fig. 83. Flame-shaped spearheads from a late Mycenaean tomb at Metaxata, Island of Kephallenia, Greece. *After* Childe, 1948b.

heads (pl. 21, *9*, *10*), a flange-hilted sword (pl. 21, *5*), median-wing axes (pl. *6*, *7*), double-sided razors with a handle ending in a ring (pl. 21, *3*, *4*), phalerae, fragments of bronze sheets ornamented with dentate bands belonging to armor (fig. 214), numerous pottery jugs, amphorae and bowls of outstanding make, some of which have a very metallic appearance (pl. 22), and other finds.

In Saxony, Silesia, Bohemia, Moravia, and Austria fibulae with a figure-eight bow and a spiral catch-plate appear in graves in association with pottery with fluted handles and with jugs decorated with flutings or engravings over the entire lower part (fig. 82, *A*, *2*; 82, *B*, *2*).

Flame-shaped spearheads were abundant in the middle Danube basin (fig. 75, *6*, *7*; pl. 21, *9*, *10*; fig. 216, *6*, *7*, *11-18*). Two very similar flame-shaped spearheads were found in the late Mycenaean Tomb A at Metaxata on the Ionian island of Kephallenia (fig. 83).

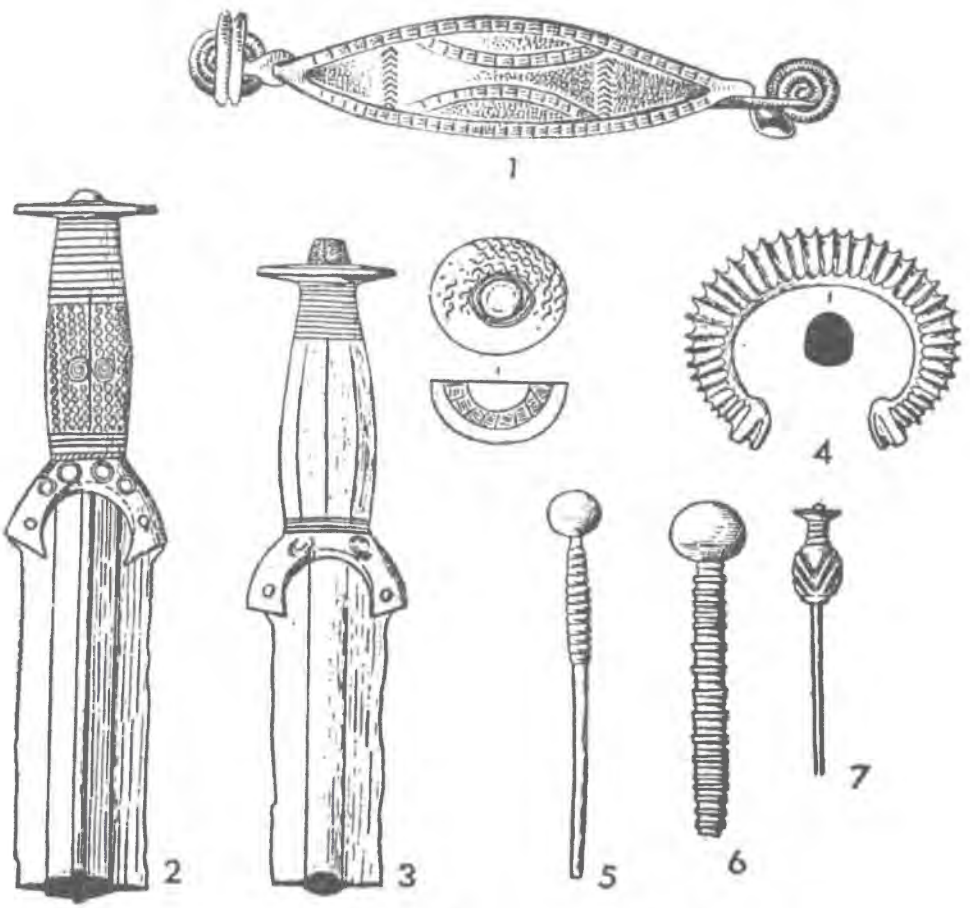


Fig. 84. Urnfield II bronzes: **1,** violin bow fibula with a flat bow; **2, 3,** bronze-hilted swords of Riegsee type; **4,** heavily ribbed bracelet; **5, 6,** pins with globular heads and heavily ribbed necks; **7,** vase-headed pin. **1,** Illmitz, Burgenland, lower Austria, *after* Pittioni, 1954; **2, 4, 6, 7,** Etting, Bavaria; **3, 5,** Riegsee, Bavaria, *after* Müller-Karpe, 1959. Scale: **1, 4-7** *ca.* 1/2; **2, 3** *ca.* 1/3.

In conclusion it can be stated that the central European Urnfield *I* phase, typified by such assemblages of finds as Sajó-Gömör (fig. 75), Cezavy (fig. 76), Gross Mugl (fig. 78), and Čaka (pls. 21, 22), is parallel to the latter part of Late Helladic III B and to the early part of Late Helladic III C. In absolute dates it should belong between *ca.* 1250 B.C. and the beginning of the twelfth century B.C. This is the period of great central European expansion, and, by a detailed analysis of bronze forms, it is possible to distinguish it from the post-expansion phase, discussed below. Other Urnfield I bronzes are illustrated in figs. 214-16; 227; 232 *A* and *B*.

c. *Central European assemblages contemporary with the latter half of the Late Helladic III C and the early Sub-Mycenaean period in Greece. Urnfield II, the middle part of the twelfth century* B.C.

Objects which best tie the central European assemblages with the Greek dates are the advanced forms of the violin-bow fibulae, those with a flattened bow and spiral catch-plate (fig. 84, *1*). With them a great number of other diagnostic finds appear in large central European hoards or graves. The most distinctive: heavily ribbed pins (fig. 84, *5, 6*), heavily ribbed bracelets (fig. 84, *4*), and bronze-hilted swords of "Riegsee type" (fig. 84, *3*), frequently decorated over the hilt by vertical bands of tiny running spirals and a larger double-spiral in the middle of the hilt (fig. 84, *2*). They were distributed from the center of



Fig. 85. Bronze types from the hoard of Suseni, central Transylvania. **1-3,** bracelets; **4,** fibula with a flat bow and pendants; **5, 6,** spearheads; **7-10,** socketed axes. Scale approx. 1/3. *After* Filimon, 1924.

production, probably in the eastern Alpine-West Carpathian area, over an enormous area of Europe between France and Rumania.

Fibulae with spiral catch-plate and flattened bow were known during the latter part of Late Helladic III C in Greece and continued during Sub-Mycenaean times (cf. Milojčić, 1950, fig. 1, *6*, *8*). Specimens in the south are reported from Mycenae, Vrokastro and Vardina. The latter is an urnfield on the Vardar River in Macedonia which, together with another urnfield at Vardaróphtsa in the same area (Heurtley, 1939), yielded fluted pottery of the Middle Danubian Urnfield *II* or Velatice type (fig. 233 A). Both sites date from about the middle of the twelfth century B.C., since Vardaróphtsa was reoccupied by the local Mycenaean people who brought with them the latest Late Helladic III C ware (Granary Style pottery). The fibula with a flat bow, decorated with semicircles and frequently with numerous elongated pendants attached to the plate, is characteristic of the eastern part of central Europe. Identical fibulae are known from the hoards of Rumania, Hungary, and Czechoslovakia. The best representatives are from the large hoards of Suseni (fig. 85, *4*) and Uioara de Sus (fig. 89, *10*) in central Transylvania. In the area of the Lusatian culture, a two-piece fibula, called the Spindlersfeld type, developed. It was especially concentrated in the eastern part of Germany (fig. 86, *2*, *5*, *6*). The name "Spindlersfeld" comes from the hoard of the same name in the vicinity of Berlin (Sprockhoff, 1938). The hoard contained several examples of such fibulae (fig. 86, *5*, *6*) in association with bracelets, round in cross-section, decorated with vertical striations (fig. 86, *13*), a pin with strongly projecting ribs on the head and a two-piece mold for it (fig. 86, *4*), a double-spiral (spectacle-shaped) pendant, and a series of pendants, some elongated with a ring head, some shaped like a human figure, others wheel-shaped and of sacred ivy-leaf form (fig. 86, *7-12*). Through the Spindlersfeld fibulae the contents of this Lusatian hoard can be synchronized with the find assemblage of Northern and Baltic Bronze Age III.

In large hoards of eastern central Europe fibulae with a flat bow appear in association with median-

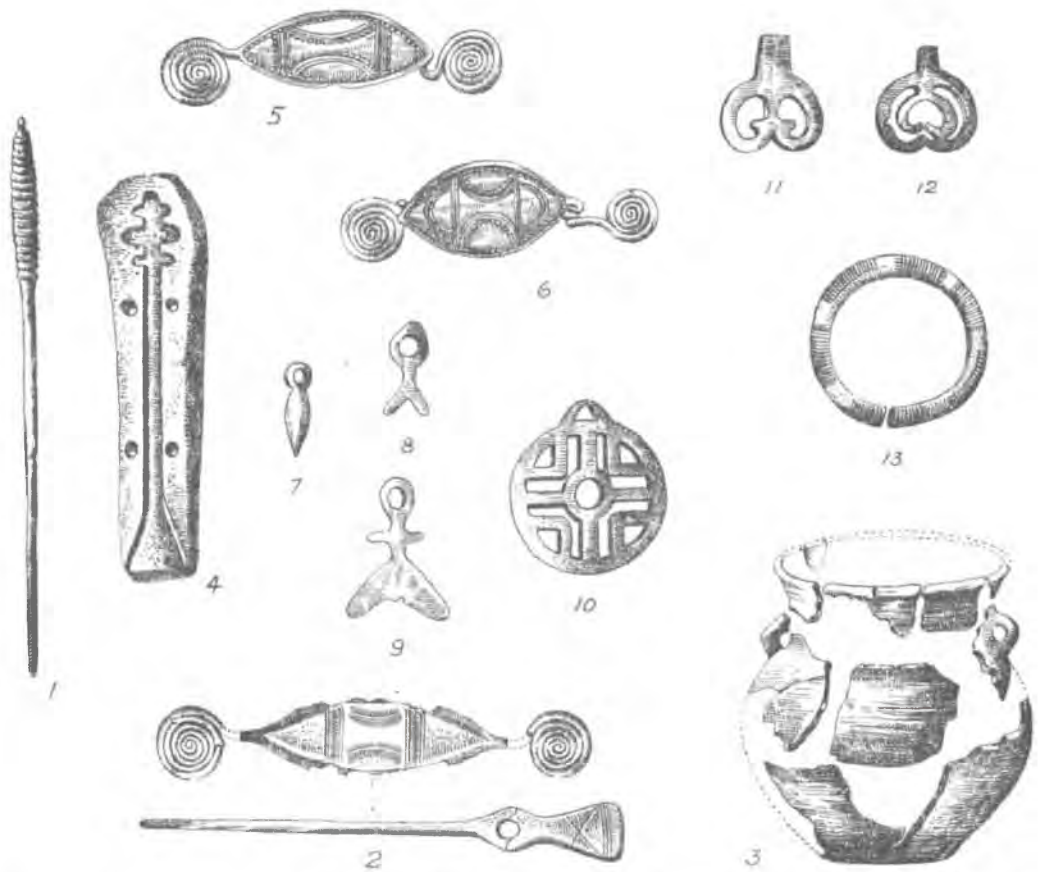


FIG. 86. **1**, pin with ribbed head; **2, 5, 6,** fibulae of Spindlersfeld type; **3,** pot; **4,** mold for a heavily ribbed pin; **7-12,** pendants; **13,** bracelet. **1-3,** from the cemetery of Czarnowo, district of Pyrzyce, east of the lower Oder; **4-13,** finds from the hoard of Spindlersfeld near Berlin. Scale approx. 1/2; pot, 1/5. *After* Sprockhoff, 1938.

wing axes (fig. 88, *12*), knives and razors with ring-heads (fig. 87, *16*, *17*), flange-hilted swords (fig. 87, *10*, *12*), "Hungarian" battle-axes with round shaft-tubes (fig. 87, *5*, *6*), "Carpathian" socketed celts with V-shaped decorations in relief below the collar (fig. 88, *9-11*), with vertical rib decoration along the sides (fig. 88, *1*, *2*), or with horizontal ribbing at the mouth (fig. 85, *6*), and socketed celts with an upwardly projecting socket (fig. 88, *7*, *8*), with sacred ivy-leaf pendants (figs. 86, *11*, *12*; 89, *13*, *14*, *16*, *17*), heavily ribbed bracelets (fig. 85, *2*, 90, *6*, *7*), twisted-rod bracelets with plain ends and thicker ones with incised geometric decoration (fig. 86, *13*), pins with heavily ribbed heads (fig. 86, *1*, *4*), poppy pins (fig. 89, *12*) and beaten bronze vessels (fig. 94). Many Hungarian, northern Yugoslavian, and Rumanian hoards of this phase contained great numbers, sometimes over 100, of sickles, socketed celts, axes, swords, knives, and ornaments. The same forms are distributed over the whole of eastern central Europe, in the urnfields of western Austria, Switzerland and southern Germany, and over the area of the Lusatian culture.

One of the tremendous hoards of this period was found in Transylvania, at Uioara de Sus (Felsöujvár). It contained a large variety of finds having relatives over a very wide area. The total weight of the finds was 1100 kg. The basic types are reproduced in figures 87-89. As can be seen in the illustrations, in addition to the flame-shaped spearhead (fig. 87, 15), there was used a plain-winged variety decorated with ridges running along both sides of the upper part of the socket (fig. 87, *13*, *14*). This kind of spearhead was current in Greece during the Sub-Mycenaean period (cf. Milojčić, 1950, fig. 2, *16*). Socketed celts with variable decoration (fig. 88, *1-11*) were used along with the socketed celts with V-

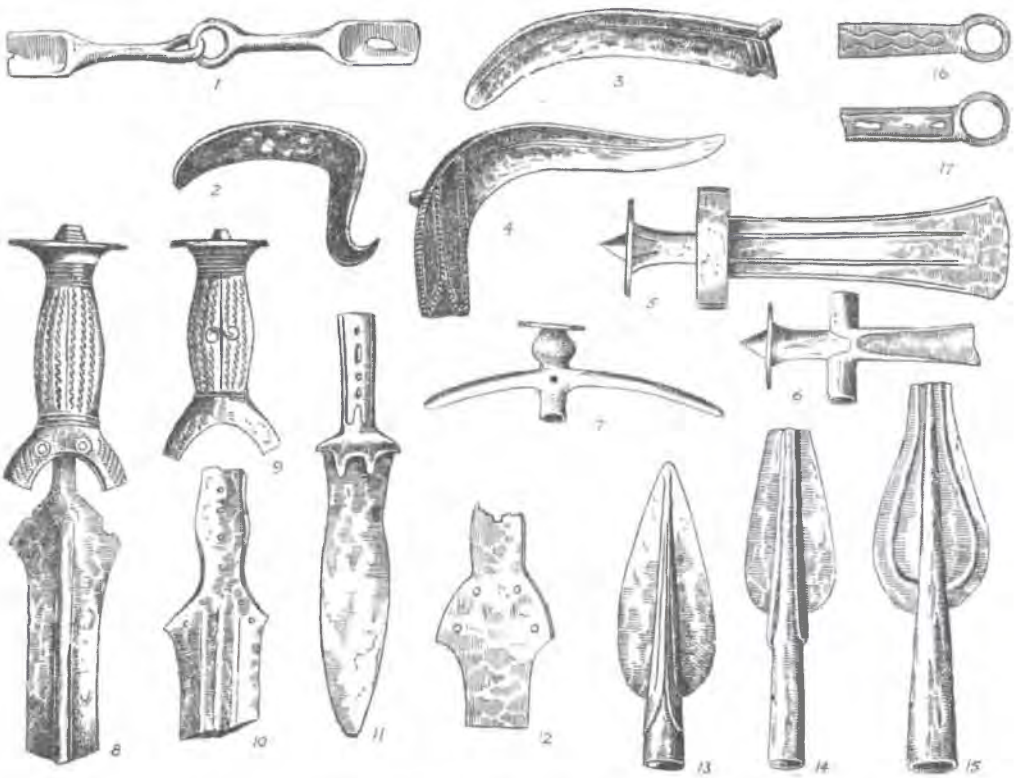


FIG. 87. Bronze types from the hoard of Uioara de Sus (Felsöujvár), Transylvania. **1,** bridle bit; **2,** hooked sickle; **3,** button sickle; **4,** tanged sickle; **5, 6,** battle-axes; **7,** macehead; **8, 9,** bronze hilts from swords and a fragment of a sword blade; **10, 12,** fragments of flange-hilted sword; **11,** dagger; **13-15,** spearheads; **16, 17,** knife handles. Scale approx. 1/3; **2,** 1/4. *After* Holste, 1951.

shaped decoration below the collar (fig. 88, *9-11*). There were also celts with projecting sockets (fig. 88, *7, 8*). Sickles were of three kinds: button sickles (fig. 87, *3*), single-ribbed tanged sickles (fig. 87, *4*), and hooked sickles (fig. 87, *2*). The variety does not appear in the western part of central Europe, but is confined to Transylvania (Rumania) and the western Ukraine. Flange-hilted swords (fig. 87, *10, 12*), solid-hilted swords ("Riegsee type"; fig. 87, *8, 9*) and daggers (fig. 87, *11*) of this hoard have parallels in the western part of central Europe. Knives had handles ending in a ring (fig. 87, *16, 17*) and some were sinuously flanged (fig. 87, *16*). Pins were of five basic types: *1*) those with a widening head, plain or geometrically decorated; *2*) those with a ribbed neck and a spherical head (fig. 89, *2*); 3) those with a ribbed neck and a flat conical head (fig. 89, *4-6*); *4*) those with large poppy head (fig. 89, *12*); and 5) those with a small spherical head (fig. 89, *3*). This hoard contained a leaf-bow fibula with spiral catch-plate (fig. 89 *10*), sacred ivy-leaf pendants (fig. 89, *13, 16, 17,*) other types of pendants (fig. 89, *15*), and the figure of a water-bird (fig. 89, *18*). There were also belt plates richly decorated with geometric and solar motifs (fig. 229), fragments of bronze vessels and bridle bits (fig. 87, *1*).

Parts of bridle were present in the large Bohemian hoard of Staré Sedo near Milevsko (Kytlicová, 1955). Cheekpieces with one round or two elongated oval holes and ornamental plates were found in this hoard together with a variously molded vase-headed pin with a knob at the end, twisted and plain bracelets and neck-rings, bracelets with spiral ends, median-wing axes and tanged sickles. Parts of bridles usually are present in the central Transylvanian hoards. Here I reproduce the hoard from Lozna-Mare (Nagylözna) in the district of Somes in Transylvania which contained a peculiar type of crescentic cheekpieces ending in round plates (fig. 90, *14, 15*). Their association with a battle-axe having a round

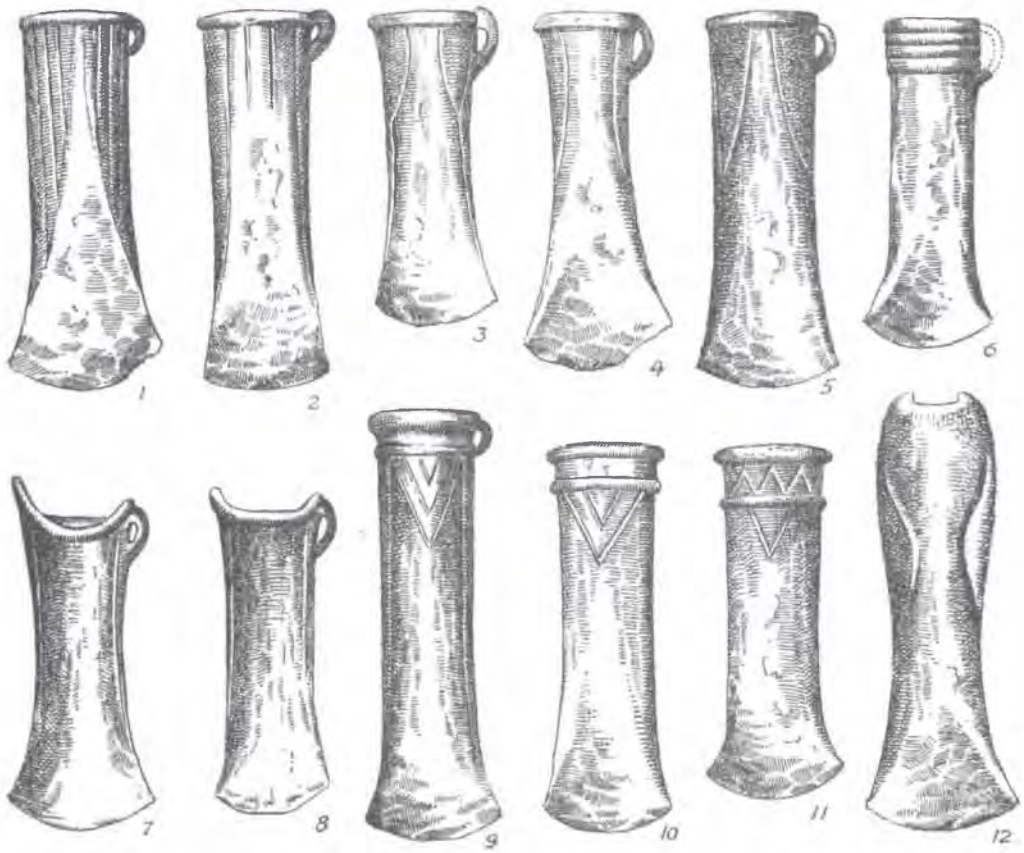


FIG. 88. **1-11,** socketed celts and **12,** a median-wing axe from the hoard of Uioara de Sus. Scale approx. 1/3. *After* Holste, 1951.

shaft-tube (fig. 90, *9*) and the Carpathian type of socketed celt (fig. 90, *12*) is evidence for its belonging to the same period as the hoard of Uioara de Sus.

The finds like those from the hoard of Uioara de Sus have many analogues in the middle Danube area and in southern Germany in the Riegsee group of urnfields. Similar or even identical were solid-hilted swords of the Riegsee type, flange-hilted swords, poppy pins, median-wing axes, button and tanged sickles, Carpathian-Transylvanian socketed celts with V-shaped decoration, two-piece fibulae with spiral catch-plate (cf. Winklsass hoard in eastern Bavaria: Holste, 1936, p. 17).

In the urnfields of the Austrian Tyrol related finds appear in the so-called Hötting-Morzg group (Pittioni, 1954, fig. 314) and in the urnfields of the Baierdorf-Velatice in Austrian Burgenland (Pittioni, 1954, pp. 433 ff.), southern Moravia (fig. 217 A) and western Slovakia. In the Bohemian urnfield groups, known as Knovíz and Milaveč, some of these diagnostic forms appear in the sites of Sváreč and Trebic type (Böhm, 1937, pp. 103 ff., 161 ff.). For example the hoard of Holašovice contains a ribbed bracelet and a vase-headed pin with zigzag molding typical of the Riegsee group, a twisted-rod bracelet, tanged sickles, and a spearhead with plain wings (Böhm, 1937, p. 165, fig. 84).

The Lusatian finds of this phase are known from a series of large hoards. The Branka hoard (fig. 91) shows typical finds of Silesia, Saxony, and Bohemia.

In the northern Carpathian area a series of hoards, some consisting of more than 100 objects, has yielded artifacts related to the above-mentioned middle Danubian, Transylvanian, and Lusatian hoards. In them usually appear button sickles, tanged sickles, and bracelets with tapered ends. Frequent are socketed celts with projecting mouths. The largest collection of northern Carpathian

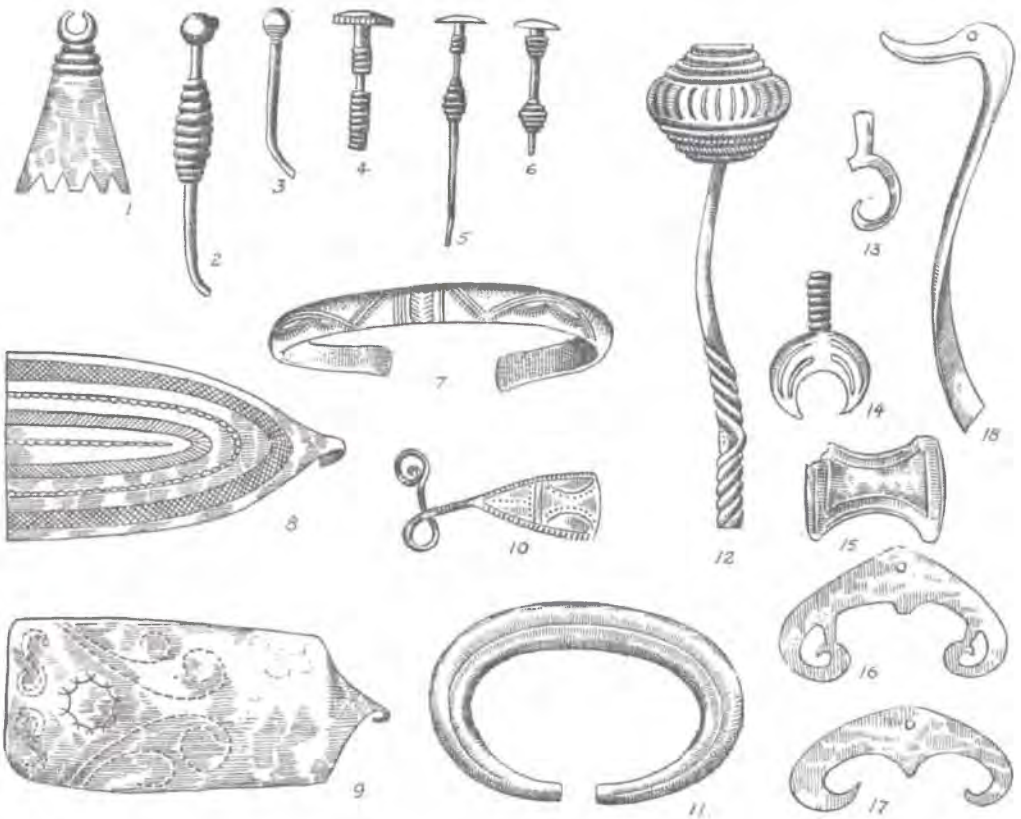


FIG. 89. Types of ornaments from the hoard of Uioara de Sus. **1, 13-17,** pendants; **2, 3,** pins with small globular heads; **4-6,** pins with button heads and ribbed stems; **10,** fibula with a flat bow and a spiral catch-plate (fragment); **7, 11,** bracelets; **8, 9,** belt plates with hooks; **12,** poppy-head pin; **18,** attachment (for a cult wagon?) in shape of a water bird. Scale approx. 1/2. *After* Holste, 1951.

bronzes current during this period is exhibited by the founder's hoard from Gruszka near Tlumach on the upper Dniester (Zurowski, 1939). Along with well-preserved socketed celts (fig. 92, *5-8*) were stout-sectioned bracelets with tapered ends (figs. 93, *4-7*), sickles (fig. 92, *1-4*), spearheads (fig. 93, *10*), and pins with double-conical ribbed heads (fig. 93, *9*); the objects were for the most part in fragments. Almost identical objects were discovered in the founder's hoard at Kamionka Wielka near Horodenka in Podolia (Sulimirski, 1930, p. 181) and in a series of smaller hoards on the upper Dniester described by Żurowski (Żurowski, 1939). The hoards mentioned above show that the region north of the Carpathians was as strongly connected with the western and southern Carpathian area as it was since the Tumulus expansion. However, northern Carpathian hoards also contained socketed celts typical of the western Ukraine, eastern Rumania, and eastern Bulgaria. Such western Pontic types appeared in the Gruszka hoard (fig. 92, *6*).

The assemblages described above indicate that a large part of Europe, from the Aegean in the south to southern Scandinavia in the north, and from the Rhine River in the west to the Dnieper River in the east, was participating in trade. In this particular period, in addition to fibulae, pins, bracelets, swords, axes, knives, etc., another trade object traveled long distances. This was the beaten bronze vessel. The production center of beaten bronze cups was in central Europe, as studies by Merhart have shown (Merhart, 1952). A fairly large number of bronze cups has been found in the area lying between the Alps and the Carpathians. From here they spread to the north, south, and east. They are found in Hungary, northern Yugoslavia, Austria, Czechoslovakia, Germany, Poland, the western Ukraine, and

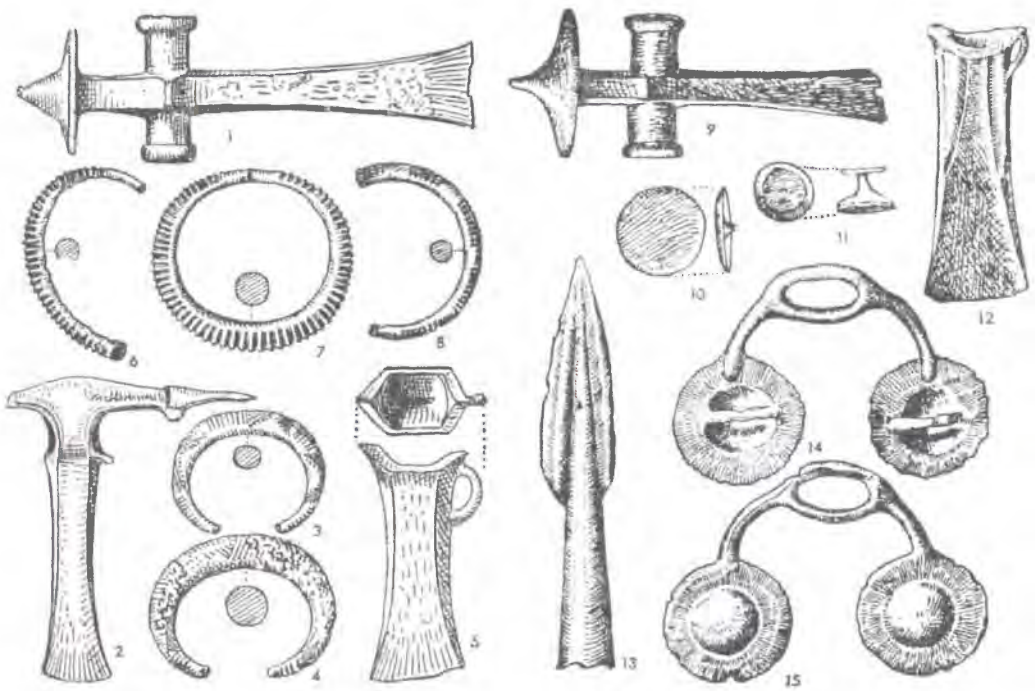


FIG. 90. **1-8,** hoard from Dragomireşti (Dragomérfalva) and **9-15,** some bronze types from the hoard of Lozna Mare (Nagylózna), central Transylvania. **1, 9,** "Hungarian" battle-axes; **2,** axe of Transylvanian type with a long back of the shaft; **3, 4, 6-8,** bracelets; **5, 12,** socketed celts; **10, 11,** ornamental plates; **13,** spearhead; **14, 15,** cheekpieces (bridle parts). Scale approx. 1/3. *After* Roska, 1942 (**1-8**), and 1944 (**9-15**).

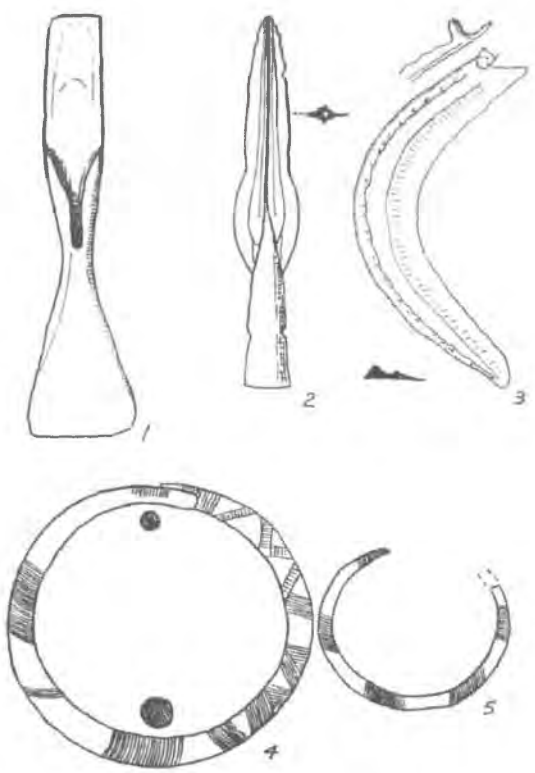


FIG. 91. Finds from the hoard of Branka, south of Troppau, Silesia. **1,** palstave; **2,** flame-shaped spearhead; **3,** button sickle; **4,** neck-ring; **5,** bracelet. Scale approx. 1/3. *After* Kleemann, 1935.

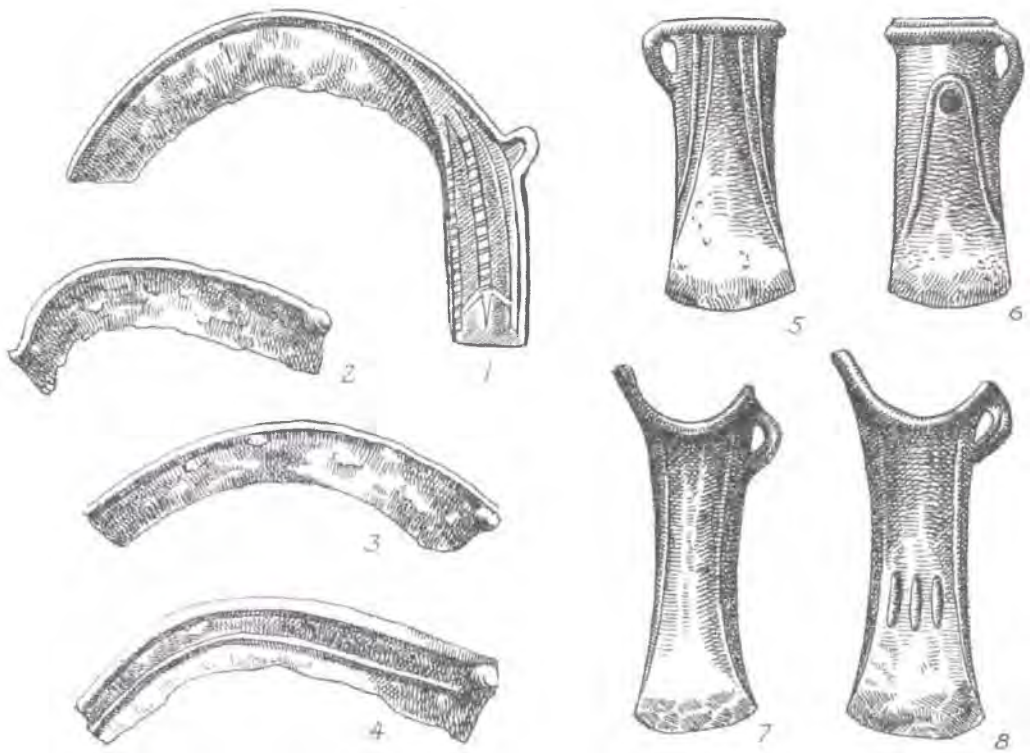


FIG. 92. Sickles and socketed celts from the smith's hoard at Gruszka, near Tlumach, upper Dniester Valley. Scale approx. 1/2. *After* Żurowski, 1949.

Rumania. The central European type of beaten bronze cup did not penetrate east of western Ukraine and Poland; it belongs to the middle part of Europe.

The earliest specimens which belong to this period are cups of Friedrichsruhe type (the name is derived from the grave of Friedrichsruhe on Glockenberg in Mecklenburg, Germany) and wheeled cauldrons. The cups were small, only about 8-10 cm in height, and had out-turned rims (fig. 94). The wheeled cauldrons were about 30 cm. high (pl. 62). Their distribution between the middle Danube basin, the Rhine, and southern Scandinavia shows that the trade followed the routes along the upper Danube, Elbe River, and the Oder River (distribution maps are in: Sprockhoff, 1930, pl. 14; Childe, 1949). In central and northern Europe they were found in graves and hoards in association with other finds and, therefore, serve well as links between the central European and Northern Bronze Age assemblages.

In the barrows of northern Germany, Denmark, and southern Sweden, the Friedrichsruhe cups and wheeled cauldrons were found in inhumation and cremation graves belonging to the Montelius' Period III. They were found together with finds typical of this period in the Northern Area: flange-hilted and bronze-hilted swords with a rhomboidal pommel, violin-bow fibulae with spirals on each end, twisted bracelets of gold ending in double spirals, collared necklaces with spiral decoration, gold rings, razors with horse-headed handles and hanging vessels ("Hängegefässen"). Such finds were made in the barrows at Friedrichsruhe, Peckatel, and Ruchow in Mecklenburg, at Skallerup on Zealand, and in Jutland, the Danish islands, and Skåne (cf. Sprockhoff, 1930, pp. 51-55, 124-25; Broholm, 1943, vol. II, pl. 29, *16*; fig. 67). In central Europe Friedrichsruhe cups and wheeled cauldrons appear among the finds described above. In the barrow at Milaveč in southwestern Bohemia cups of Friedrichsruhe type were found in association with a wheeled cauldron (pl. 62, *1*). In the urnfields near Munich, a Friedrichsruhe cup was found in the cemetery of Grünwald (grave No. 1) in association with variously molded vase-headed pins, a great many bracelets decorated with clusters of diagonal or vertical striations, rings,

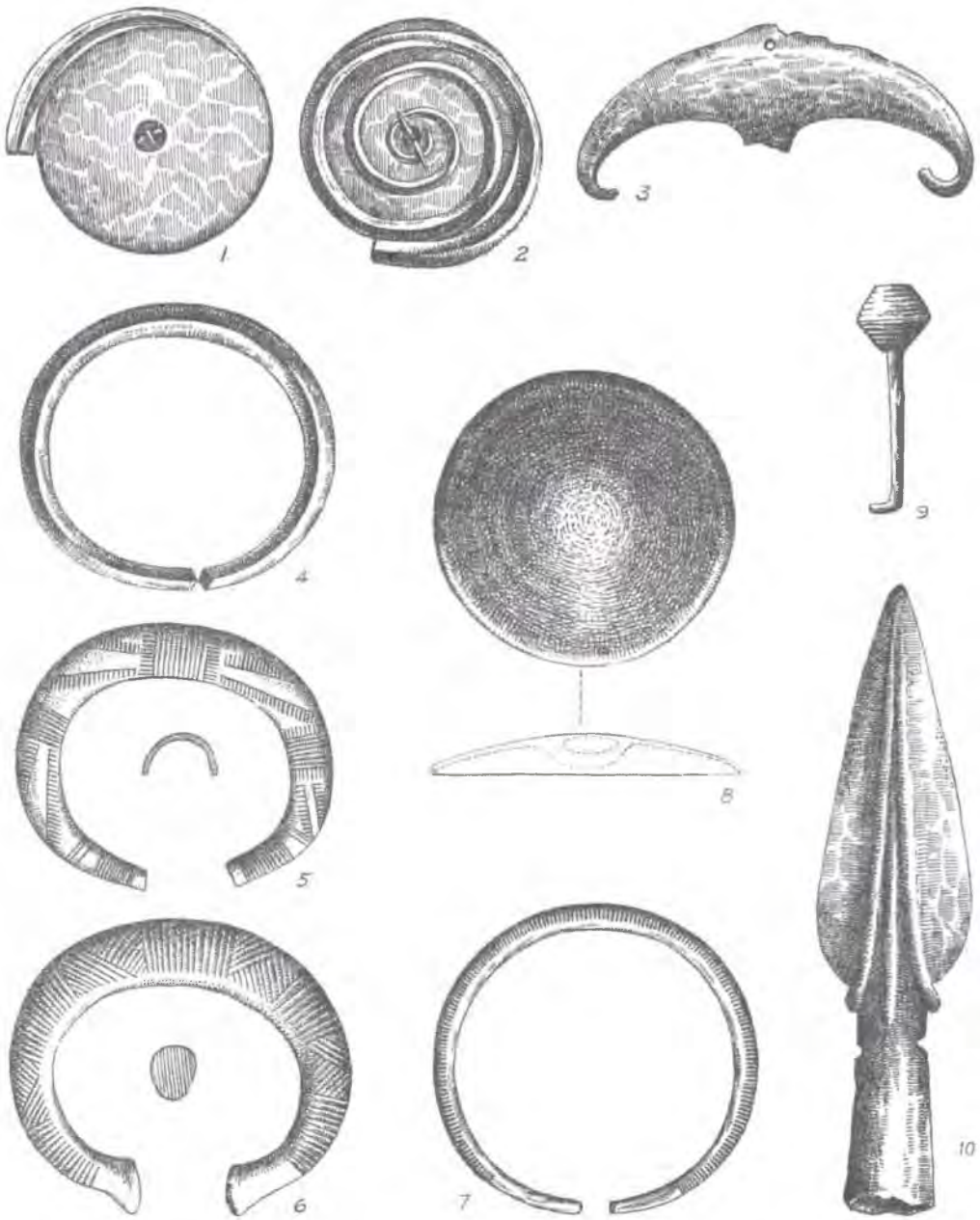


FIG. 93. Bronze types from the hoard of Gruszka, upper Dniester. **1, 2,** disc with a spiral decoration (viewed from both sides); **3,** pendant; **4-7,** bracelets; **8,** ornamental plate (part of horse gear?); **9,** pin with a biconical ribbed head; **10,** spear-head. Scale approx. 1/2. *After* Żurowski, 1939.



FIG. 94. Cup from Friedrichsruhe, Mecklenburg. Scale 1/4. *After* Sprockhoff, 1930.



FIG. 95. Cup of Friedrichsruhe type and a socketed celt from Pavlovka, Bessarabia.
Scale: **1**, 1/2; **2**, 1/1. *After* Tallgren, 1926b.

ring and wheel pendants, pendants ending in heads of waterbirds, etc. (Müller-Karpe, 1957, pls. 6, 7).

In the east, a cup of similar type comes from Pavlovka near Akkerman, Bessarabia, northwest of the Black Sea. It was found in a barrow during the 1880's (Tallgren, 1926, p. 156). Within the cup was found a socketed celt (fig. 95).

In conclusion, the following groups of the central European urnfields can be classed as Urnfield *II*: Riegsee in Bavaria; Hötting-Morzg in upper Austria and northern Tyrol; Middle Danubian or Baierdorf-Velatice in lower Austria, southern Moravia, southern Bohemia, western Slovakia and western Hungary; Sváreč and Trebic assemblages in Bohemia belonging to the so-called Knovíz or Milaveč cultural group; classical Lusatian culture in central Germany and western Poland in my scheme or "Lausitz A" in Seger's scheme. In Rumania this phase is typified by assemblages like those from the hoard of Suseni (fig. 85), of Uioara de Sus (figs. 87-89) and Drajna de jos (figs. 104, 105). In the area north of the Carpathians, it is typified by the bronzes of Gruszka type (figs. 92 and 93).

The era of the central European assemblages of this particular period is designated by various symbols: in Reinecke's system for southern Germany it is still phase D; in Holste's for Bavaria, Hallstatt A; in Pittioni's for lower Austria, Hallstatt A with "D" elements; in Böhm's for Bohemia, D_2; in Müller-Karpe's for the north Alpine area, Hallstatt A_1 (which also covers the beginning of Urnfield *III*). An accumulation indeed! The application of the term "Hallstatt" for the central European Late Bronze Age phases dating back to Reinecke's time is a misunderstanding. "Hallstatt" properly belongs to the Early Iron Age, the period of the Hallstatt cemetery. However, it continues to be used even in the latest monographs dedicated to the Bronze Age chronology of central Europe.

Urnfield *II* belongs to the post-expansion period of the central European Urnfield people. A trend towards sophistication is noticeable. The style of ornaments can be characterized as "heavily ribbed style".

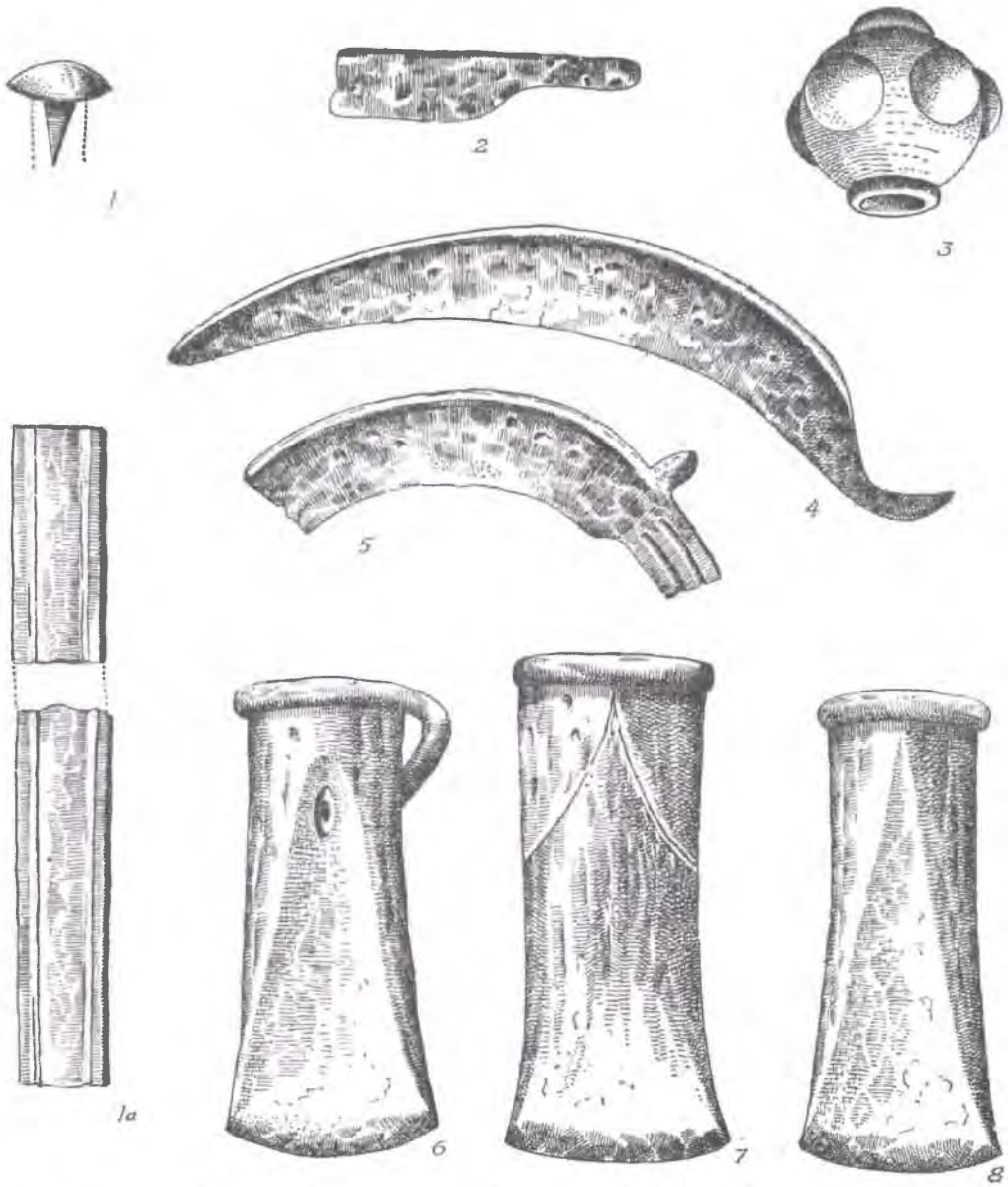


FIG. 96. Rajgorodok hoard, district of Kharkov, eastern Ukraine. **1,** fragments of a sword; **2,** fragment of a knife; **3,** macehead; **4, 5,** sickles; **6-8,** socketed celts. Scale: **1,** 1/4; **2, 3, 6-8,** 1/2; **4, 5,** 1/3. *After* Gorodtsov, 1928.

2. *The western Ukrainian-Moldavian and northern Caucasian assemblages of finds: their relationships to Transcaucasia and Iran and to eastern central Europe*

The northern Caucasus continued to use related forms of metal artifacts. They represent, in the main, a corpus produced in the metallurgical centers of the central Caucasus and the area of the Kuban River. Its basic types show a general similarity to Transcaucasian, Anatolian, and north Iranian forms.

During this phase, local metallurgy appeared northwest of the Black Sea in the western Ukraine and Moldavia. In addition to production of metal types borrowed from the Caucasus, the new metallurgical center produced its own forms, strongly influenced by eastern central European metallurgical centers.

Around the lower Dnieper there is a series of hoards and habitation sites which contained bronzes of eastern central European and of Caucasian-Near Eastern types, and which have a special value for



FIG. 97. Bronze macehead from the cemetery of Beshtasheni, Georgia.
Grave No. 13. Scale approx. 1/2.
After Kuftin, 1941.

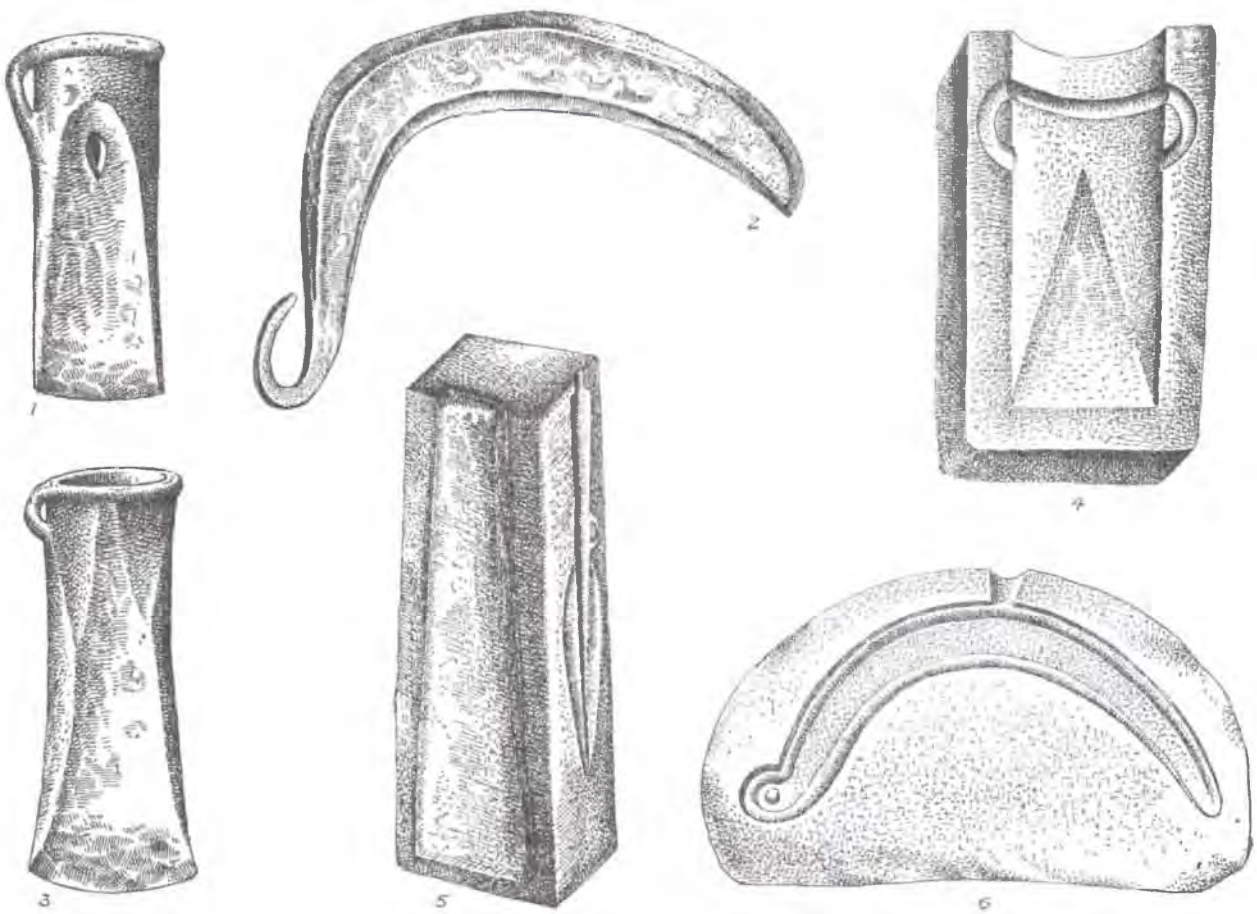


FIG. 98. Koblevo hoard, near Odessa, western Ukraine. **1, 3,** socketed celts; **2,** sickle; **4-6,** molds.
Scale 1/3. *After* Tallgren, 1926b.

chronological comparisons. The western Ukraine continued to be a meeting point of Ponto-Caucasian and central European forms.

The hoard from Rajgorodok near Starobelsk in the district of Kharkov, found in 1915 and mentioned by Gorodtsov in 1928, included a bronze macehead with five bulbs (fig. 96, *3*), socketed celts (fig. 96,



FIG. 99. Socketed celts from the hoard of Majachki, Konka River, west of the lower Dnieper. Scale 1/2. *After* Museum of Dnepropetrovsk.

6-8), fragments of a sword (fig. 96, *1*) and a knife (fig. 96, *2*), and three sickles, two of which were in fragments (fig. 96, *4*, *5*). The macehead represents a typical Near Eastern and Transcaucasian form. In Georgia this type of macehead was found in the cemetery of Samtavro II in the layer of graves which preceded Pre-Koban and in the cemetery of Beshtasheni (fig. 97).

The socketed celts from Rajgorodok are of western Pontic (fig. 96, *6*) and of Transylvanian (fig. 96, *7*, *8*) type. The blade of the sword shows two parallel grooves on each side. As only the pommel and fragments of the blade survived, it is impossible to reconstruct the total form of the sword. The Rajgorodok, Berislav (fig. 342) and many other sickles from the Ukraine and Caucasus have a saddle-like or irregularly shaped projection which very probably results from the method of casting used. The molds found in the lower Dnieper area usually show a funnel-shaped opening through which molten metal was poured (fig. 98, *6*). The projections may simply illustrate the unfinished condition of the sickles.

The ten or so hoards from the lower Dnieper area and from Moldavia contained artifacts of related character. The hoard found near Odessa in Koblevo (fig. 98) yielded many molds for sickles (like fig. 98, *6*), celts (fig. 98, *4*), flat axes and socketed spearheads with a loop attached to the upper part of the socket (fig. 98, *5*), and finished or unfinished sickles and socketed celts. The sickles were local western Pontic types (fig. 98, *2*, *6*). So were the flat celts and spearheads (fig. 98, *5*). The socketed celt with two loops represented by a mold (fig. 98, *4*) is related to the series of celts known from the hoards and an isolated find in the lower Dnieper area. The socketed celt (fig. 98, *3*) is a Transylvanian type. The socketed celt with flat sides, having a hole near the socket and one loop (fig. 98, *1*), or sometimes two, or no loops, is the most frequent form west of the Black Sea in eastern Bulgaria, eastern Rumania, and the western Ukraine: they are typical of the Noua group in Moldavia. Celts of the same kind have been found in the northern Caucasus (fig. 101, *1*, *2*), where they must be regarded as imports from the west. Such celts also appear in the upper Dniester area and their occurrence in the northern Carpathian assemblage (cf. the hoard of Gruszka, fig. 92, *6*) makes it possible to synchronize the central European cultures with the culture found north of the Black Sea. In the hoard of Majachki on the Konka River in the lower Dnieper area, socketed celts of local and of middle Danubian-Transylvanian type appeared (fig. 99). Those with flat sides represent local types (fig. 99, *2*, *3*). The type with diagonal ridges running from the mouth of the socket to either side of the celt (fig. 99, *1*) is characteristic of northern Yugoslavia, Hungary, and Rumania. Along with many other Rumanian and Hungarian hoards, the



FIG. 100. Hoard of Novogrigorjevka, near Voznesjensk, lower Southern Bug. **1-4,** socketed celts; **5,** knife; **6,** bracelet. *After* Tallgren, 1926b.

Gusteriţa treasure from Transylvania, consisting of nearly 400 kg of bronze artifacts, yielded many celts of this type (Holste, 1951, pls. 24-27).

In the hoard of Novogrigorjevka in the basin of the lower Southern Bug (fig. 100), there occurred four socketed celts, representing Carpathian-Transylvanian (fig. 100, *1-3*) and western Pontic (fig. 100, *4*) types, a knife (fig. 100, *5*), and ten arm-rings which were round in cross-section and ornamented with groups of alternating diagonal strokes (fig. 100, *6*). This hoard can be thought of as a connecting link between the western Pontic bronzes, on the one hand, and the Carpathian and middle Danubian bronzes, on the other. The celts, knife, and arm-rings have close parallels in large hoards found in Hungary and northern Yugoslavia, which, on the other hand, included many other diagnostic central European types. To mention some, the hoard of Otok-Privlaka near Vinkovci, northern Yugoslavia, which contained four kinds of socketed celts: *a*) those with a diagonal ridge from the mouth of the socket to either side of the celt, *b*) those with multiple V-decoration below the collar; *c*) those with projecting mouth; and *d*) those with flat sides, similar to the type current in the western Pontic area. In this hoard the celts were found in association with flame-shaped spearheads, a Spindlersfeld fibula, and other finds characteristic of Urnfield II in central Europe. The hoard is in the Zagreb Museum and part of it was published by Holste (1951, pls. 6, *6*). A similar assemblage of finds is evidenced in the Bizovac hoard containing 330 bronzes (Holste, 1951, pls. 3, *4*, *1-19*).

An additional piece of evidence for the connection between eastern central Europe and the northern Caucasus is supplied by the socketed celts of the Pavlovka type in Bessarabia, northwest of the Black Sea (fig. 95), found in association with a beaten bronze cup of Friedrichsruhe type and one celt of related type known from the Pjatigorsk Museum in the center of the northern Caucasus (fig. 101, *3*).

A hoard discovered at Avraamovka, lower Dnieper (fig. 102), contained nine copper sickles and some fragments of them, three lugged adzes, one socketed chisel, one flat axe, one bracelet, and copper ingots. The hoard is especially distinctive because of its large sickles with hooked ends, measuring between 40 and 50 cm in length (fig. 102, *1-4*), and a peculiar lugged adze with faceted sides (fig. 102, *5*). The Avraamovka sickles with short hooks at the end differ from the usual northern Pontic forms which have a

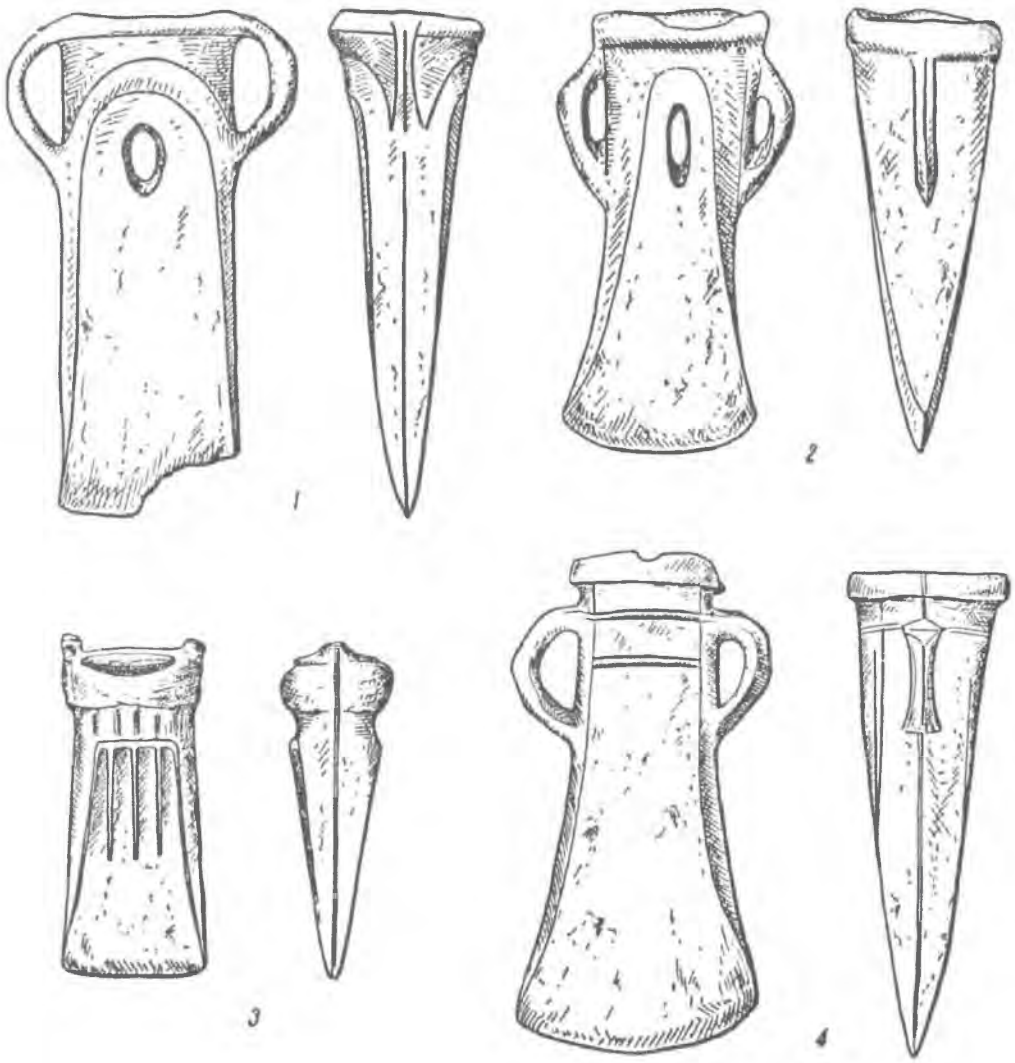


FIG. 101. Western Pontic types of socketed celts from the northern central Caucasus. **1,** Pjatigorsk Museum; **2,** Krasnodar Museum; **3,** Kelermes site, Pjatigorsk Museum. Scale approx. 1/3. *After* Iessen, 1951.

narrow and very long tang. Hooked sickles, but in smaller proportions, are found in great numbers in Rumania and some are known from Hungary and northern Yugoslavia. Hundreds appeared in the hoard of Gusteriţa (Holste, 1951, pls. 24-27) and 195 were found in the hoard of Drajna de jos in Rumania (fig. 105). In both hoards they were associated with the usual central European tanged and button sickles. In Hungary and northern Yugoslavia hooked sickles also come from hoards and foundries. The appearance of these sickles and their distribution indicate that they were manufactured and used in the area between the middle Danube and the lower Dnieper. The Avraamovka sickles represent the local Pontic type. The lugged adzes from the hoard of Avraamovka (fig. 102, *5*) have analogies in Anatolia, Syria, Palestine, and even Egypt. These adzes do not have pronounced lugs and fit in with Type II of Maxwell-Hyslop's classification of lugged adzes. They belong to the second half of the second millennium B.C. in the Near East, where they come from well dated strata and where most are dated to the twelfth and eleventh centuries B.C. (Maxwell-Hyslop, 1953, pp. 81-82). In northern Anatolia and Transcaucasia the same type of lugged adze occurs quite frequently.

In the district of Dnepropetrovsk was discovered a Transylvanian battle-axe with a cylindrical

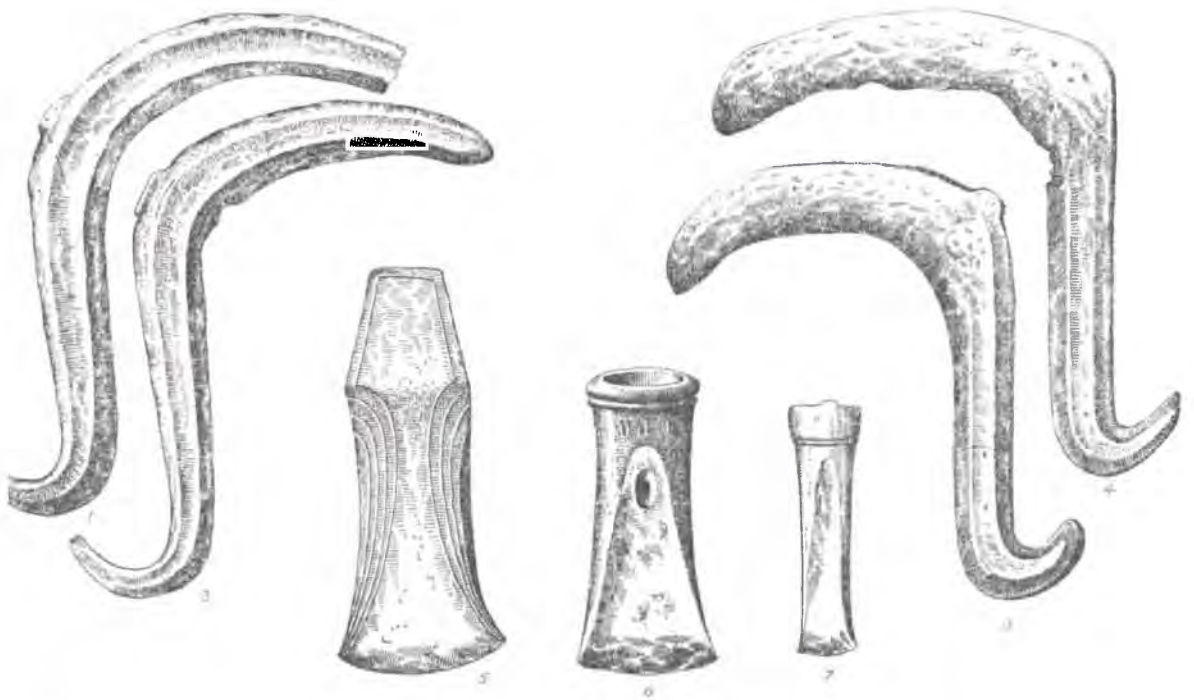


FIG. 102. Avraamovka hoard, lower Dnieper. **1-4**, copper sickles; **5**, lugged adze; **6**, socketed celt; **7**, socketed chisel. Scale: **1-4**, 1/6; **5-7**, 1/3. *Courtesy of* M. Miller. Museum of Dnepropetrovsk, collection of A. N. von Poll of 1884.



FIG. 103. Axe of Transylvanian type from the district of Dnepropetrovsk. Scale approx. 1/3. *Courtesy of* M. Miller.

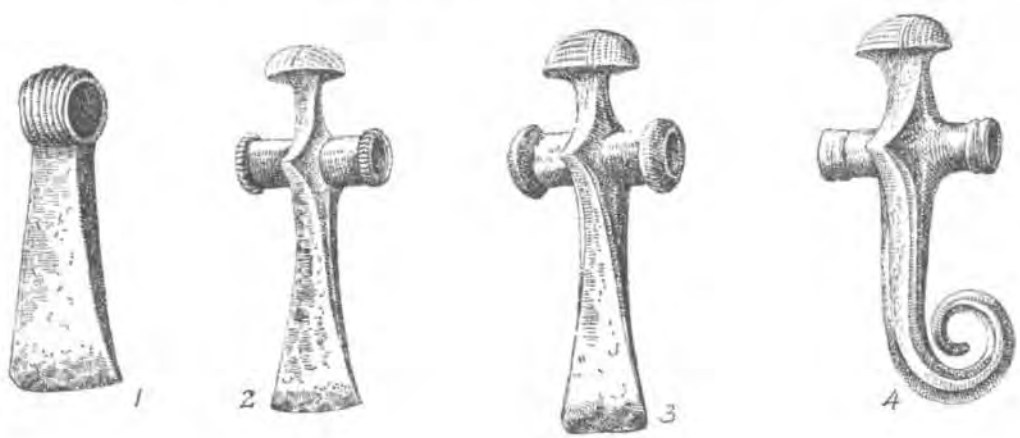


FIG. 104. Axes from the hoard of Drajna de jos, eastern Rumania. Scale approx. 1/4. *After* Andriesescu, 1925.

shaft-tube and a large conical plate at the butt-end (fig. 103), no doubt imported to the western Ukraine from Transylvania. Close parallels are known from the hoard of Drajna de jos, north of Bucharest, Rumania (figs. 104 and 105) and other Transylvanian hoards (fig. 90, *1*, *9*).

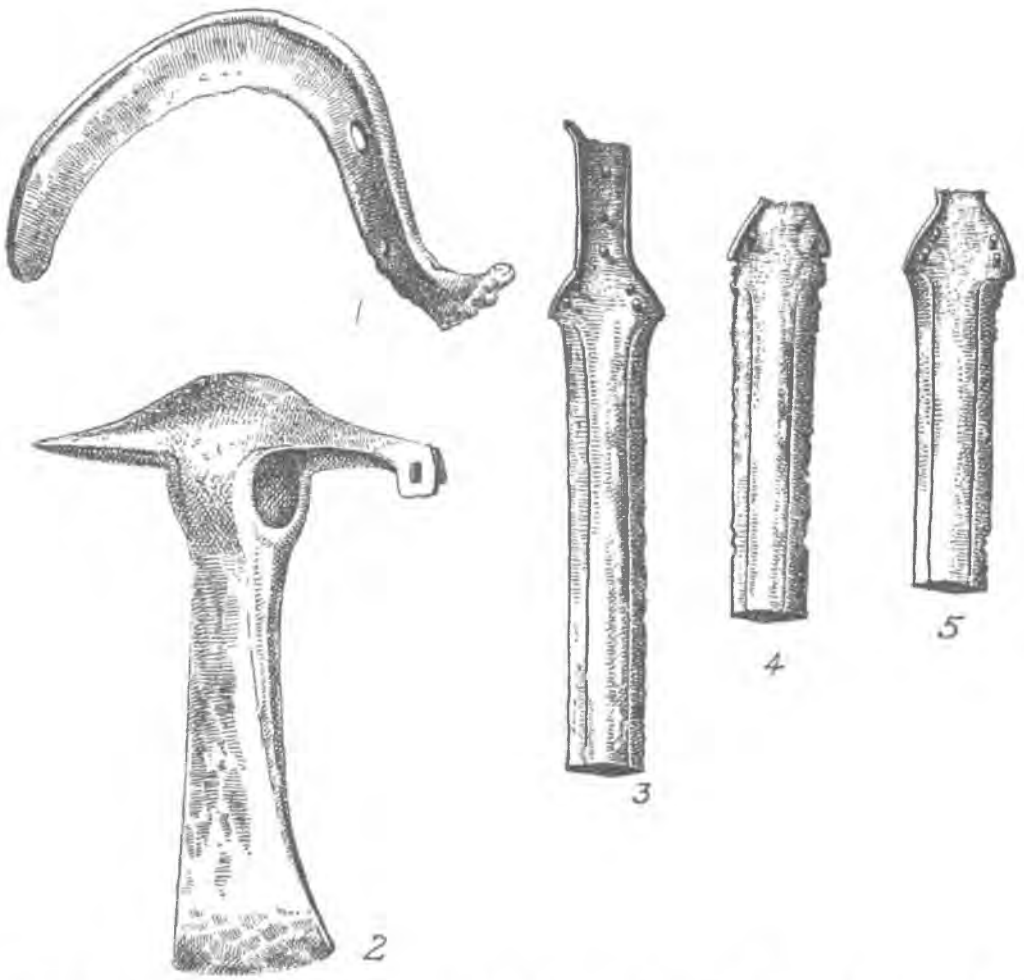


FIG. 105. **1**, sickle; **2**, axe; and **3-5**, flange-hilted swords from the hoard of Drajna de jos, eastern Rumania. Scale: **1, 2** approx. 1/2; **3-5** approx. 1/6. *After* Andrieşescu, 1925.

The axe from the hoard of Dragomirești (fig. 90, *2*) as well as the Drajna de jos hoard, like the one in figure 104, *2*, and the multisided molds for adzes with a broadening edge, chisels and other objects, like those from the hoard of Avraamovka (fig. 102, *5*, *7*), have analogues in Troy (Schmidt, 1902, Nos. 6726, 6761, and 6768). The objects were found by Schliemann and positive proof as to which layer of Troy they belong in is lacking, but very likely the attribution to Troy VII b_2 is correct (Blegen, 1958, p. 144). Troy VII b_2 is dated by Blegen to the twelfth century B.C.

3. *Conclusions*

The period between *ca.* 1250 and 1125 B.C. or thereabouts, which in *Greece* includes the end of Late Helladic III B and Late Helladic III C and the early Sub-Mycenaean, equates in *central Europe* to early Urnfield period. Its early part, Urnfield *I* or the expansion period, can be placed between *ca.* 1250 B.C. and the beginning of the twelfth century B.C. as indicated by bronzes of central European appearance in Greece in association with the finds of the end of Late Helladic III B and III C_1. Urnfield *II*, or the post-expansion period, must belong mainly in the twelfth century B.C.

In the *Northern Area* (northwest Germany, Denmark, southern Sweden) this is Period III.
In the *southeastern Baltic area:* the classical Baltic Bronze Age (Rantau I and II).
In the area *north of the Carpathians:* Gruszka phase of the North Carpathian culture.
In the *western Pontic area:* the late Monteoru or Noua culture, successor to Monteoru proper.
In the *northern Pontic area:* Berislav-Rajgorodok-Avraamovka phase of the North Pontic culture.

B. LATE BRONZE AGE CONTEMPORARY WITH SUB-MYCENAEAN, PROTOGEOMETRIC AND EARLY GEOMETRIC GREECE AND PREVILLANOVAN AND EARLY VILLANOVAN ITALY

1. *Urnfield III in central Europe, from the end of the twelfth century to ca. 1000* B.C.

There was no abrupt change of forms between Urnfield *II* and *III*, only a gradual evolution. The central European Urnfield peoples lived in the same villages and buried their dead in the same cemeteries for centuries. Continuity can be observed in a number of large horizontally stratified cemeteries, as for example Grünwald and Unterhaching near Munich (Müller-Karpe, 1959, pp. 151-55). Although some artifact forms such as double-edged razors, belt plates with hooks, and knives had a long life and changed slowly, others changed more rapidly. Heavily ribbed pins went out of fashion. In their place, pins with globular, conical or biconical heads appeared (fig. 240, *6-12*). Heavily ribbed bracelets also went out of fashion and geometrically decorated and twisted forms became dominant. The bossed and diagonally fluted pottery of the early Urnfield period disappeared. Instead, pots were decorated predominantly with incised geometric motifs (fig. 238A; 240, *14*, *18*) or with horizontal and vertical flutings and with imitation of bosses by fluting or incision (fig. 110, *7*).

A new type of fibulae with spiral plate ends had a figure H attachment on the back of the plate. The bow was sometimes adorned with birds holding rings in their beaks (fig. 236, *2*) or was made of a snake-shaped spiral connecting the spiral plates (fig. 108, 14). While in central Europe the fibula with spiral catch-plates continued to appear, in the western Balkans, Italy, Greece and the eastern Mediterranean, the arc fibula replaced the violin-bow type.

The change of ornament forms and pottery decoration is a basic criterion for the definition of the limit between Urnfield *II* and *III*. Urnfield *II* ends with the disappearance of heavily ribbed pins and bracelets and of the boss-decoration on pottery. At the same time bronze-hilted swords with hilts decorated in bands of vertical spirals of Riegsee-Baierdorf-Uioara-de-Sus type (fig. 87, *8*, *9*) were replaced by specimens decorated with horizontal bands of spirals and ridges. Flange-hilted swords had hilts with projections and wider blades. Beaten bronze vessels evolved into richly decorated specimens. This transition must have occurred somewhere in the late twelfth century B.C.

Central European connections with Greece ceased, but Italy remained in close relations with the western Balkans and Europe north of the Alps. The chronology of Urnfield *III* is largely based, therefore, on the analogies in Previllanovan Italy. The date of the beginning of this phase can also be tied in with the Aegean chronology by means of central European bronzes found in Crete.

a. *Central European swords and spearheads in the tholos tombs at Mouliană, Crete*

In the tholos tombs at Mouliană, Tomb A and Tomb B, four flange-hilted swords and several spearheads were found, all apparently of central European origin. Tholos B included two swords (fig. 106, *1*, *2*), two spearheads (fig. 106, *3*, *4*), and two phalerae. Tholos A, in addition to central European swords, contained two Aegean swords with T-shaped grips, the latest variants of Aegean Group F in Sandars'

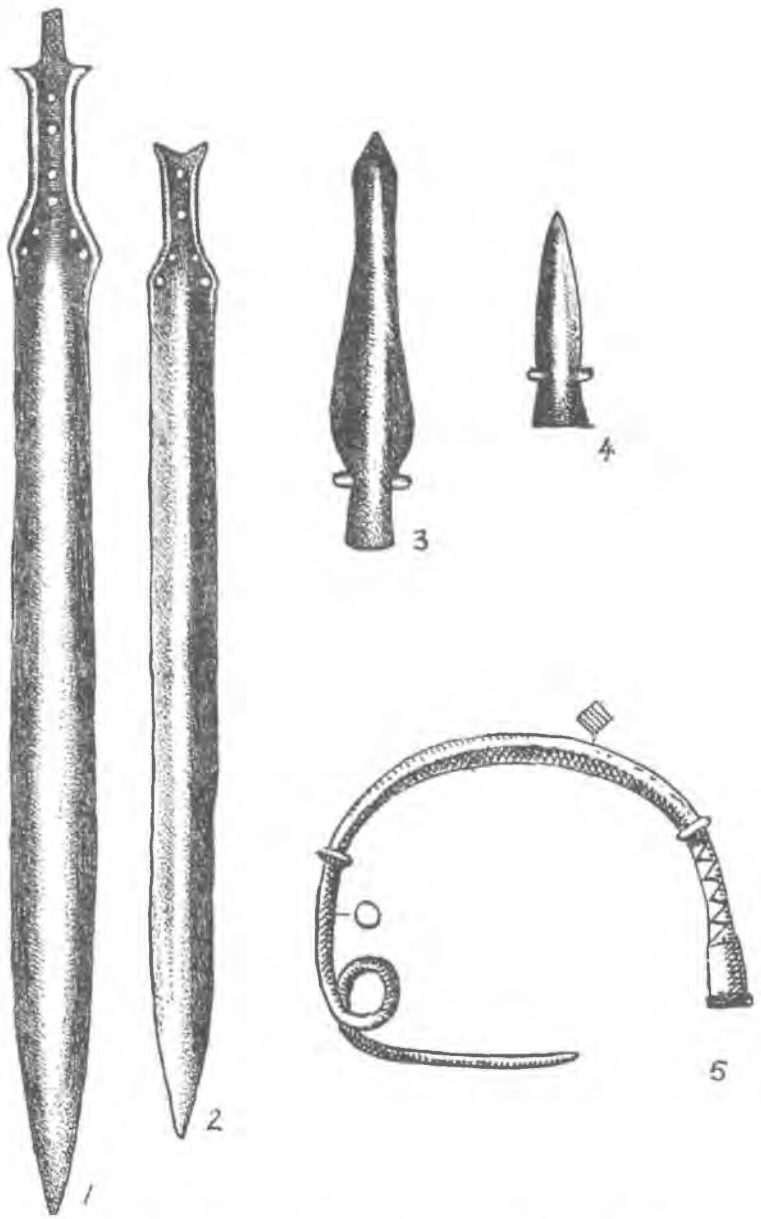


FIG. 106. **1,** flange-hilted sword; **2,** spearhead; **3,** pin; **4,** arc-fibula. From Tomb A at Moulianá, Crete. *After* Milojčić, 1955.

classification (Sandars, 1963, p. 134), a damaged Aegean spearhead with a faceted socket, a pin with a swelling on the neck, several graceful arc fibulae (one reproduced in figure 106, *5*), and other finds (Xanthoudides, 1905; Milojčić, 1950; 1955a; Sandars, 1963). Both tombs included Minoan pottery classed by Furumark as Late Minoan IIIB2b and 2c. If Furumark's date of 1125-1075 B.C. for Late Minoan IIIB2c pots in Tholos A is right, the end of the twelfth century B.C. can be accepted as a date for Moulianá tombs.

The Moulianá swords are definitively central European forms representing further development from Urnfield *II* swords. Two of the swords from graves at Moulianá had grips with projections in the middle which are frequent on Urnfield *III* (Hallstatt A2) swords. They are called Erbenheim type (Cowen, 1956, pp. 74, 75). The spearheads from Tomb B had bronze rivets in the shaft (fig. 106, *3, 4*). Rivet

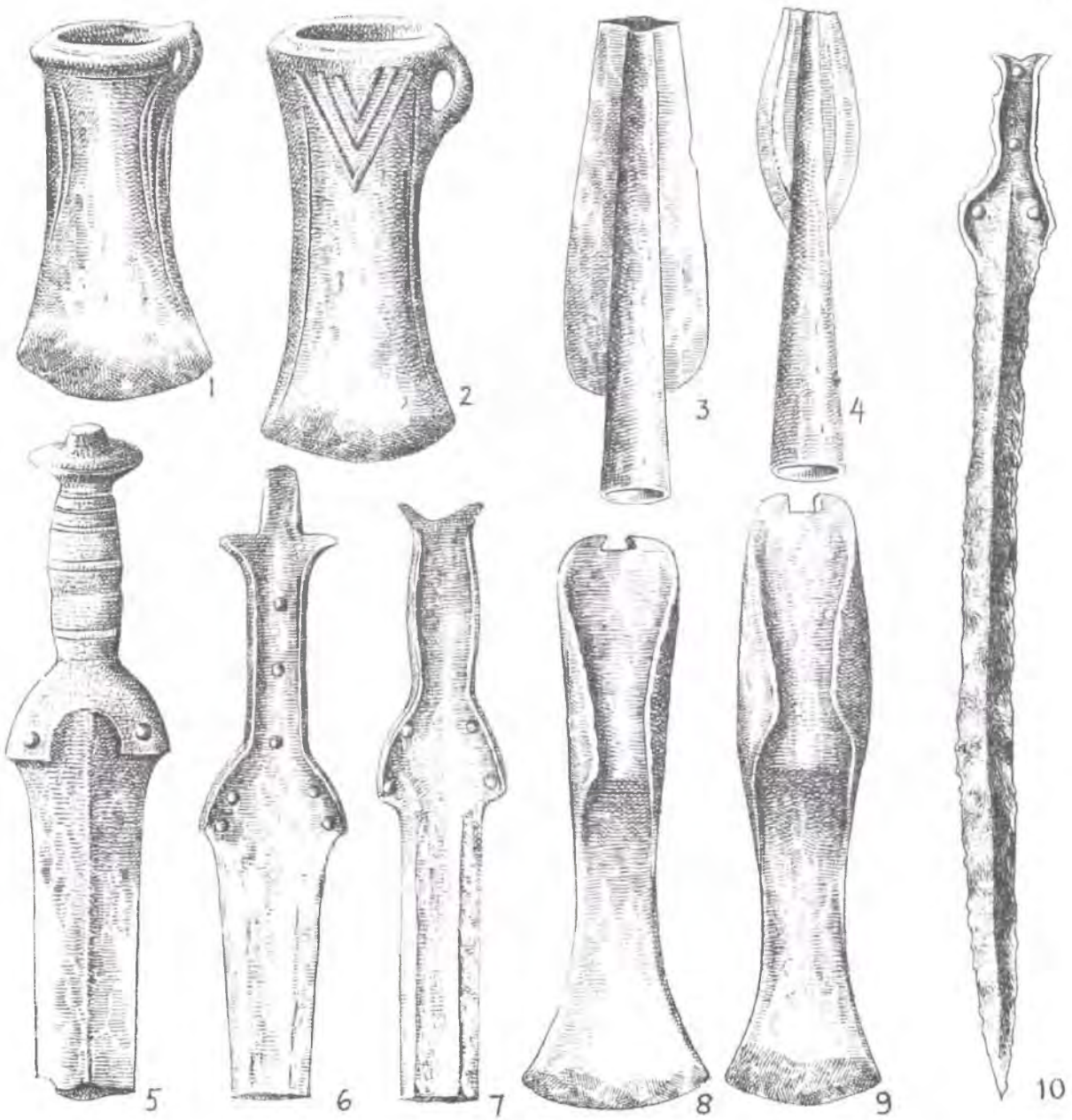


FIG. 107. **1-9**, bronze forms from the hoard of Ker, district of Somogy, Hungary. **1, 2**, socketed celts; **3, 4**, spearheads; **5**, bronze-hilted sword; **6, 7**, flange-hilted swords; **8, 9**, winged axes. Scale: **1-4, 8, 9** approx. 1/2; **5-7**, approx. 1/3. *After* Hampel, 1887. **10**, iron sword from the offering place in the cave at San Canziano (St. Kanzian) near Trieste. Scale approx. 1/4. *After* Szombathy, 1937.

holes are common on central European spearheads. The larger spearhead was decorated with two parallel lines engraved at the outer part, a typical decoration of central European late Urnfield spearheads.

The arc fibula of Moulianá (fig. 106, *5*) can be placed in the beginning of the arc-fibula series. It is simple and graceful, and two swellings on the sides of the arc indicate its development from the late violin-bow fibula current in the twelfth century B.C. A similar fibula was found in a pithos at Assarlik in Caria, Anatolia (Blinkenberg, 1926, fig. 43). This pithos is held to be contemporary with a grave

beside it which contained Sub-Mycenaean pottery dating from the twelfth century B.C. Closely related fibulae were brought to light in the urnfield of Timmari in the province of Matera in Basilicata, south-eastern Italy (Müller-Karpe, 1953, Taf. 14 *A*). In the graves of Timmari also were found a pin with a globular swelling in the middle of the neck (similar to that found in Moulianá Tholos *A*) and razors having large double-edged blades. One of the razors was decorated with an hour-glass (sacred altar) motif, which is frequent on artifacts of the twelfth century B.C.

Figure 107, *1-9*, shows weapons and tools from the hoard of Kér in northern Hungary, which is probably contemporary with the Moulianá tombs. The two flange-hilted swords in this hoard (fig. 107, *6, 7*) have hilts like those of Moulianá swords (fig. 106, *1, 2*). The forms of socketed celts, median-wing axes, and spearheads in this hoard are typological developments out of Urnfield *II* types. In fact, the forms are very much the same, except that socketed celts became shorter and winged axes had blades a little more developed.

In the votive cave of San Canziano near Trieste in Istria, the earliest iron sword in central Europe was found (fig. 107, *10*). Although other finds in this cave ranged from Urnfield *I* to *III* and even later (Szombathy, 1937), the similarity of its hilt and blade to twelfth century bronze places the iron sword in Urnfield *III*.

A grave including a sword with a projection at the end of the hilt and a widening blade from the cemetery at Wollmesheim in Rheinland-Pfalz (fig. 108) can be mentioned here in connection with the Moulianá swords and the repertory of bronzes in western central Europe at the beginning of Urnfield *III*. The sword (fig. 108, *1*) was found in association with pins having spherical or flattened spherical heads and a few ribbings below the sphere (fig. 108, *2, 3*), a pin with a biconical head (fig. 108, *4*), bracelets decorated with groups of striations (fig. 108, *6*), a bead of nephrite (fig. 108, *10*), a fibula with a long snake-shaped band between the spiral catch-plates (fig. 108, *14*), a perforated whetstone (fig. 108, *15*), a hook with a ring attached to its end (fig. 108, *17*), bronze arrowheads, tanged and socketed (fig. 108, *7-9, 11-14*), a slender knife with a round hilt having a rivethole (fig. 108, *16*), two arm-rings made of two twisted rings and one flat ring having small spiral ends (fig. 108, *18, 19*), and an anklet made of a broad bronze plate, ending in large spiral plates (fig. 108, 20). The ornaments of this grave show further developments of Urnfield *II* forms. The arrowheads and the knife are very similar to those in the wagon, grave of Hart, mentioned below (fig. 111, *2-5*).

Other Urnfield *III* forms can be detected through associations with beaten bronze vessels, which continued to be produced in central Europe, and developed into more varied and more extravagantly decorated specimens.

b. *Central European assemblages characterized by bronze vessels of Dresden-Dobritz type*

In addition to simple, undecorated bronze cups like the earlier Friedrichsruhe type, cups, bowls, buckets, and sieves of various sizes, decorated with bossing and the ornament of raised ridges, were now produced. This is demonstrated in a hoard of Dresden-Dobritz, found in 1948, which contained 17 objects made of beaten bronze (Coblenz, 1952). Among them were one bucket (fig. 109, *7*), two bowls (fig. 109, *3*), 13 cups (fig. 109, *1, 2, 4, 5*), and a sieve (fig. 109, *6*). Some cups were plain, but eight cups were decorated with two and three horizontal rows of small bosses below the neck and a star motif with seven or nine points executed in parallel raised ridges, encircling the lower part (fig. 109, *4*). The out-turned rim of the sieve was decorated with raised ridges forming a zigzag pattern and several rows of bosses below the rim (fig. 109, *6*). The bucket was also decorated with parallel raised ridges horizontally arranged below the rim, and with alternating rows of smaller and larger bosses (fig. 109, *7*). Its handle was adorned with a herringbone motif (fig. 109, *7, right*). All objects were found stored in an orderly fashion in a large terrine, as if they had been intended for trade (Coblenz, 1952, pls. 18, 19). The trade in bronze vessels

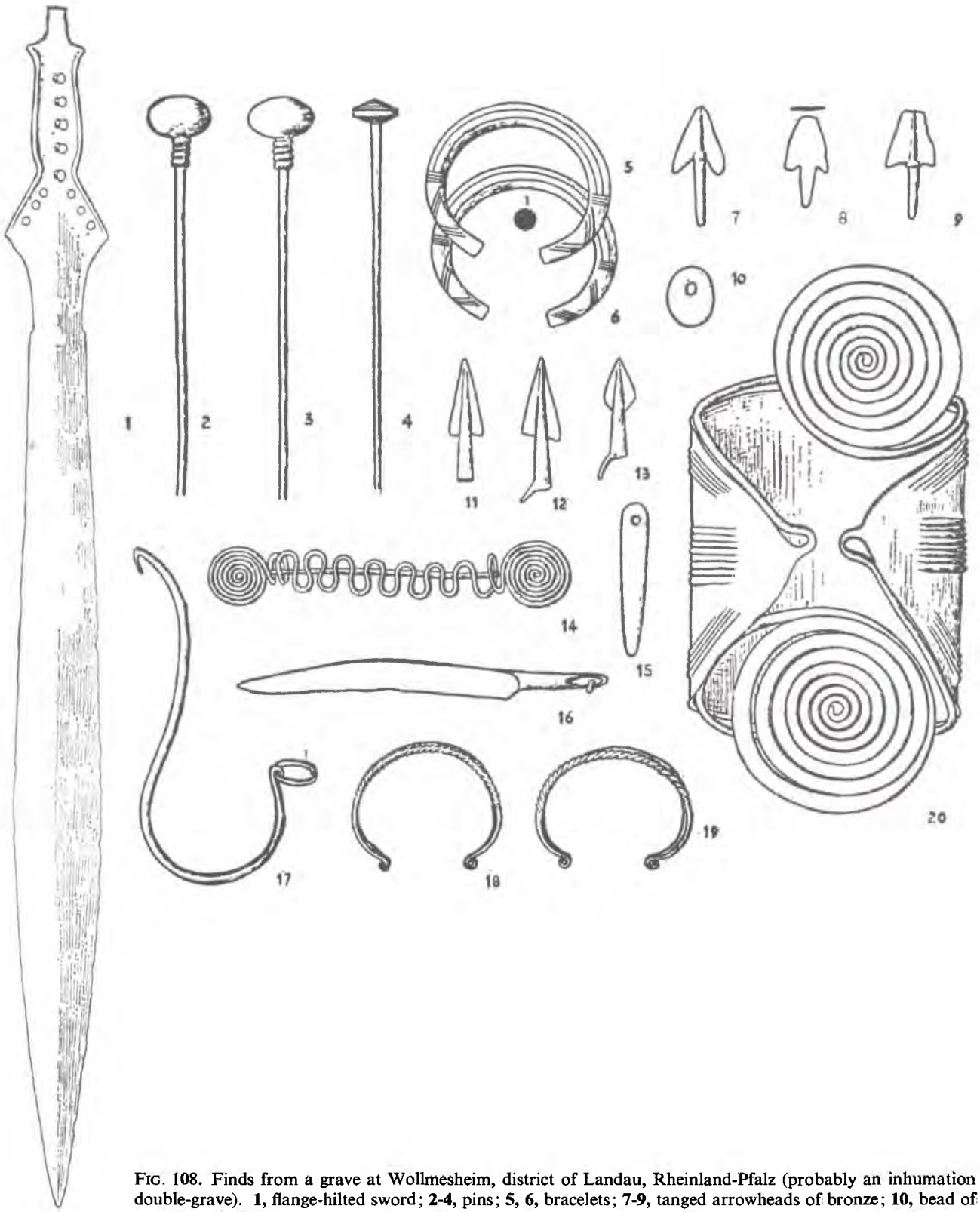


FIG. 108. Finds from a grave at Wollmesheim, district of Landau, Rheinland-Pfalz (probably an inhumation double-grave). **1,** flange-hilted sword; **2-4,** pins; **5, 6,** bracelets; **7-9,** tanged arrowheads of bronze; **10,** bead of nephrite; **11-13,** socketed arrowheads; **14,** fibula with spiral plate ends and a snake-shaped bow; **15,** whetstone; **16,** knife with a riveted handle; **17,** bronze hook; **18, 19,** neck-rings; **20,** anklet with large spiral plate ends. The same grave contained a wooden shield (74 rivets were found), pots, a hematite sphere, and many more neck-rings and bracelets. Scale: **1, 15, 18, 19** approx. 1/3; **2-14, 16, 17, 20** approx. 1/2.
After Müller-Karpe, 1959.



Fig. 109. Bronze vessels from the Dresden-Dobritz hoard, eastern Germany. **1, 2, 4, 5,** cups; **3,** bowl; **6,** sieve; **7,** bucket. Scale approx. 1/4. *After* Coblenz, 1952.

may well be related to wine trade, as Stuart Piggott has pointed out (Piggott, 1959). The whole collection of vessels, buckets, large and small cups, and strainers surely must have been significant: the buckets served as containers, the strainers must have strained some liquid, and the cups were for drinking. The largest number of these vessels was found in central Germany and Bohemia and perhaps they were produced in this area, but the possibility of the Carpathian center cannot be excluded.

Several undecorated Dresden-Dobritz cups had handles with bulls' horns made of wire (fig. 109, *1*). Cups or sieves with handles decorated with bulls' horns are known from several other places in central Europe. A sieve with a handle decorated with bulls' horns and a plain cup were found in the late Lusatian barrow in the Schweinert forest near Falkenberg in Saxony (fig. 238 B, *2, 3*). The Schweinert vessels appeared in association with geometrically decorated pottery, typical of the late Lusatian period (fig. 238 A). In addition there were found in the same grave, a poorly preserved spearhead and a knife with an offset sinuous blade (Agde, 1936). The rim of the sieve from Schweinert was decorated with a zigzag ornament as was the sieve from Dresden-Dobritz.

There are a number of hoards and graves in Czechoslovakia and central Germany in which sieves, buckets or cups of Dresden-Dobritz type were found, together with other items, and thus their contents constitute a large body of Urnfield *III* artifact types. The following can be mentioned as having a chronological value:

The hoard of Středokluky in Bohemia, discovered in 1956, contained a bronze sieve of exactly the same type as was found in Dresden-Dobritz, and an undecorated cup. Besides this, there were many associated objects: a lunulate razor with a rhomboid handle; a belt hook; a slender knife with a grip with rivets; a twisted necklace; a large phalera with fine concentrically embossed decoration; 18 spiral tubes; a blue glass bead; a sacred ivy-leaf pendant; conical and flat buttons; the spiral plate of a fibula; and 28 rings (Kytlicová, 1959).

To the same group of finds, belongs the grave inventory of Žatec in southern Bohemia which included a cup with embossed decoration, a bronze-plated wooden cist, a double-edged razor with a ring-handle, and a narrow, slightly curved knife (pl. 68, *1-4*).

In the cemetery of Osternienburg near Anhalt in central Germany many bronze cups ornamented with several rows of small bosses around the shoulders and a star motif in raised ridge ornament, closely related to the Dresden-Dobritz cups (like that in fig. 109, *4*), appeared in association with phalerae, an A-handled cauldron, a winged axe, a fibula with small spiral plates at the end and a ribbed bow typical of early Northern Bronze Age IV, geometrically decorated bracelets, bird figurines, and other finds (Sprockhoff, 1930, Taf. XI). A bronze cup with a star motif was brought to light in an urn-grave at Viernheim near Bergstrasse, Hessen, Germany, together with a spearhead with simple narrow wings, a narrow knife, late Urnfield pottery, and other finds (Jorns, 1960).

Another collection of bronzes and pottery pertaining to this phase is the grave of Fuchstadt near Ochsenfurt in Unterfranken, Germany, which contained a plain cup (fig. 110, *3*) in association with a pin having a small globular head decorated with striations over the upper part of the stem (fig. 110, *1*), a double-edged razor with a fret-worked handle ending in a ring (fig. 110, *2*), a slender knife with a handle ending in a hook (in German called "Griffdornmesser": fig. 110, *4*), sherds of an urn with a cylindrical neck (fig. 110, *6*), an amphora decorated with horizontal and semicircular flutings (fig. 110, *7*), and a beaker with a handle (fig. 110, *8*).

A bronze cup decorated with a row of small bosses (fig. 111, *13*), a sieve (fig. 111, *14*), and a bucket (fig. 111, *15*) were brought to light in the wagon-grave at Hart in upper Bavaria (Müller-Karpe, 1955). In addition to the bronze vessels, the rich man or a royal personage of Hart was equipped with a sword whose bronze hilt was decorated with three horizontal bands of running spirals (fig. 111, *1*), a slender knife with a rivet-hole at the end of the hilt (fig. 111, *5*), bronze arrowheads with barbs at the lower part of the socket (fig. 111, *2, 3*), a tanged arrowhead (fig. 111, *4*), and a bracelet (fig. 111, *8*). The same grave contained rivets and bronze mountings, some of which were shaped like water birds (fig. 111, *9-11*). In Müller-Karpe's chronological scheme the Hart grave is classed as Hallstatt A_1. Since the bronze vessels from Hart are not identical with those of Dresden-Dobritz, they may slightly precede the Dresden-Dobritz time horizon. Other forms, as represented in the wagon-grave of Hart, conform, however, with the forms of Urnfield *III*. The hilt of the sword decorated with three bands of running spirals separated by raised ridges and horizontal striations (fig. 111, *1*), must, on the basis of decoration

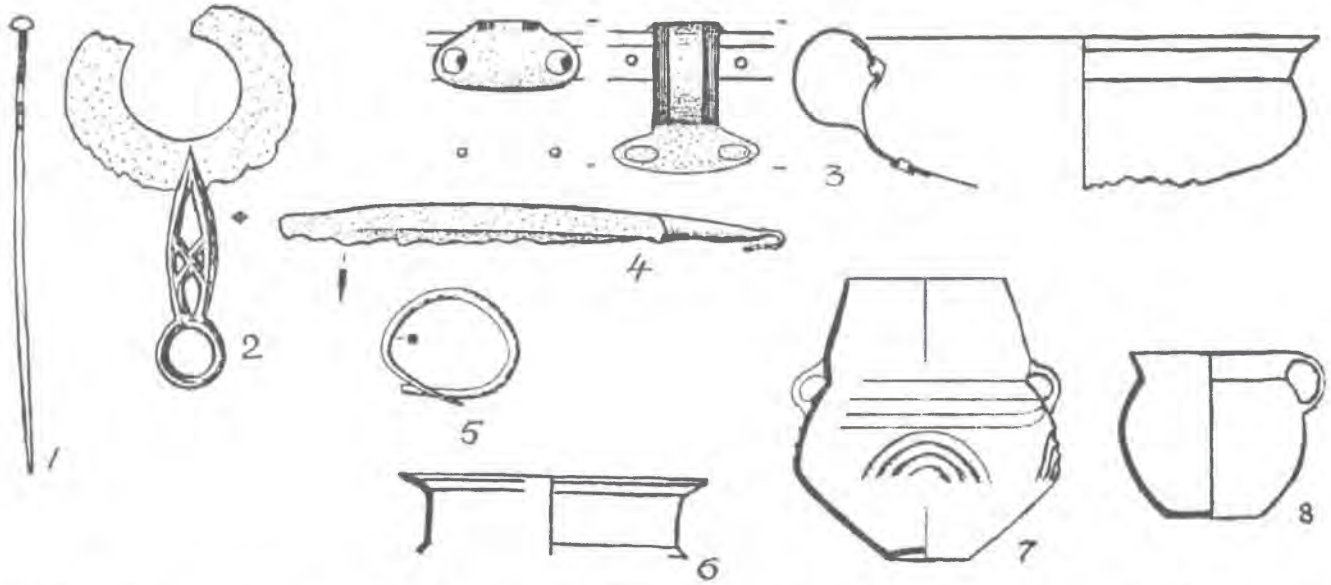


FIG. 110. A grave inventory from the cemetery at Fuchstadt, district of Ochsenfurt in lower Franconia (Unterfranken). **1**, pin; **2**, double-edged razor; **3**, bronze cup; **4**, knife; **5**, bracelet; **6-8**, pots. Scale: **1-5** *ca.* 1/3; **6** 1/8; **7, 8** 1/5. *After* Müller-Karpe, 1959.

style, be placed at the beginning of the series of late Urnfield swords, and differs considerably in decoration from the swords of Riegsee-Baierdorf-Uioara de Sus type (fig. 87, *8*, *9*), typical Urnfield *II* representatives. Consequently, I place the wagon-grave of Hart at the early part of Urnfield *III* together with Wollmesheim and Moulianá. From this it is seen that Urnfield *III* does not exactly correspond with Müller-Karpe's Hallstatt A_2. It covers the end of Müller-Karpe's Hallstatt A_1 and his Hallstatt A_2.

In addition to local typologies and stratigraphies, the date of Urnfield *III* is indicated by analogies in Previllanovan Italy. The parallelism in forms of pins, razors, knives, winged axes, bronze vessels, and even in decoration of pottery speaks for very intimate relations between central Europe and the Apennine Peninsula. The following hoards and urnfields in Italy can be considered as contemporaneous: the hoard of Merlara in Venetia (Müller-Karpe, 1959, Taf. 83); the urnfield of Pianello in the province of Ancona (Müller-Karpe, 1959, Taf. 53-56); the urnfield of Fontanella near Bergamo in northern Italy (Müller-Karpe, 1959, Taf. 86). Among the finds made in the lake-dwelling site of Peschiera in the province of Verona there were many pins closely related to central European pins of this phase and a sieve of Dresden-Dobritz type (Müller-Karpe, 1959, Taf. 104; Taf. 105, *2*). These artifacts of Peschiera should be atttributed to the late Peschiera horizon or Peschiera II. The hoard of Merlara and the already mentioned urnfield of Timmari must be parallel to the early part of Urnfield *III*. In Merlara, a bronze bucket was found related to that from the wagon-grave of Hart. In Timmari, as we already know, the arc fibulae were of early type, very probably contemporary with fibulae of Moulianá Tomb A.

The form analysis and parallels in the south show that the Urnfield *III* phase was contemporary with Previllanovan Italy, and its early part with Sub-Mycenaean Greece and Late Minoan IIIB2c-Sub-Minoan period in Crete. Hence, its date is from the end of the twelfth century to *ca.* 1000 B.C.

The region north of the Black Sea was a separate world having almost no connections with the west. The Russian Bronze Age of this period has a strictly eastern character. In the western Pontic area there was no longer intermingling of Caucasian and eastern central European forms as there had been during the twelfth century B.C. This sudden change was caused by the expansion of the late Timber-grave people from the Don and lower Volga area to the northwestern Pontic region. This Timber-grave period is characterized by the Sosnovaja Maza bronzes, so called after an outstanding hoard found near Khvalynsk (fig. 387), described under the Timber-grave culture. The sphere of Caucasian influence in

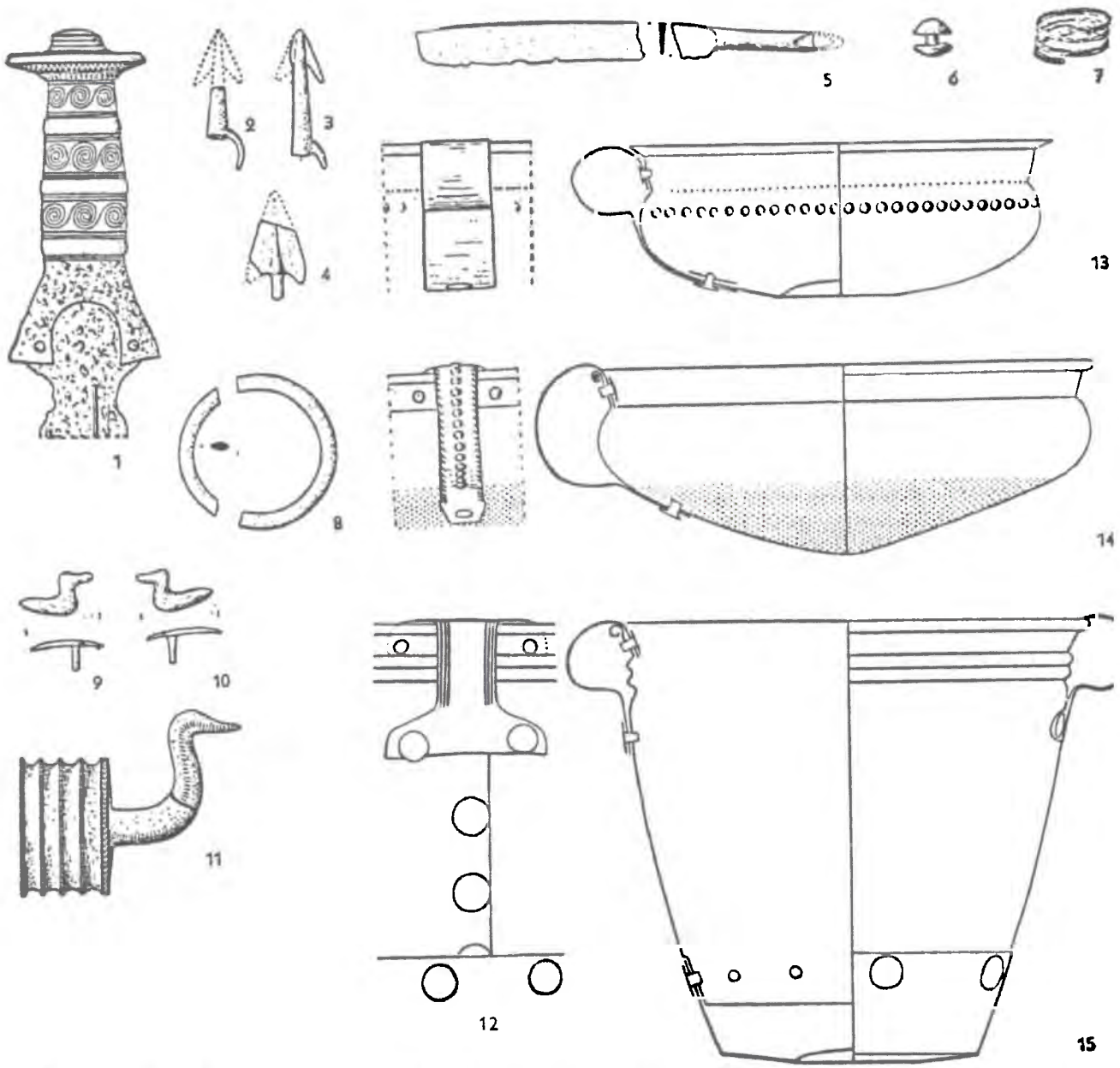


FIG. 111. Finds from the wagon-grave at Hart, Bavaria. **1,** bronze hilt of a sword; **2-4,** bronze arrowheads; **5,** knife; **6,** rivet; **7,** gold ring; **8,** bracelet; **9-11,** bird-shaped mountings for wagon parts; **12,** attachments of the handles to the bronze vessels; **13,** cup; **14,** sieve; **15,** bucket (situla). Scale 2/5. *After* Müller-Karpe, 1959.

the north and west was now greatly diminished. As Russian and northern Caucasian bronzes cannot be directly correlated with central European forms, the chronology of this particular period of the Timber-grave culture, northern Caucasian, and Turbino cultures is discussed within the frames of the separate cultures.

2. *Urnfield IV, in central Europe from ca. 1000–900/850 B.C.*

a. *Find assemblages characterized by beaten bronze vessels of Jenišovice type*

The bronze cups with embossed decoration and angular profile are known as Jenišovice type. The name

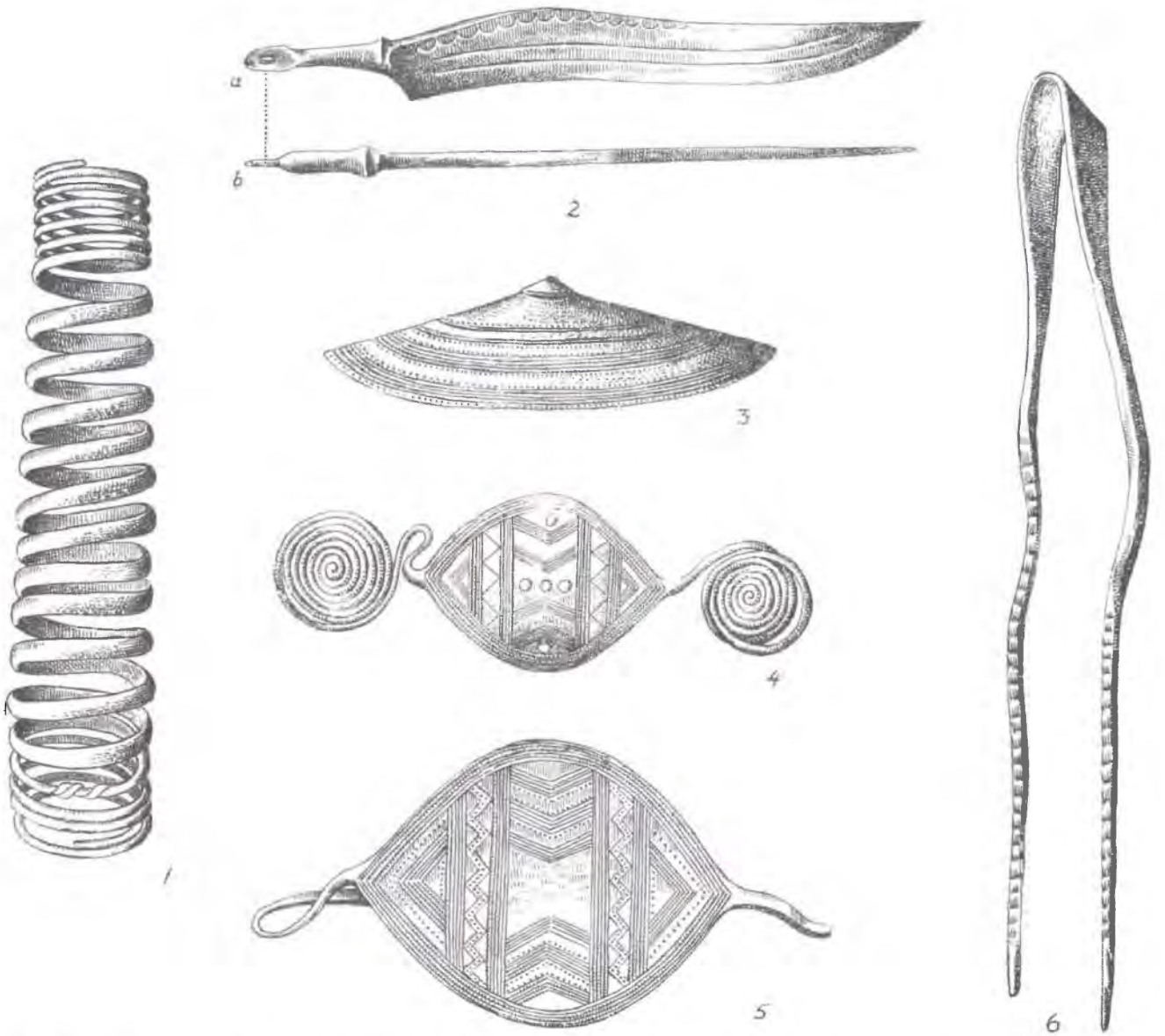


FIG. 112. Bronze objects from the hoard of Jenišovice, Bohemia (together with plate 23). **1**, spiral arm-ring; **2**, knife; **3**, phalera; **4**, flat-bow fibula; **5**, giant flat-bow fibula; **6**, pincers.
Scale: **1, 3, 5, 6** 1/3; **2, 4** 2/5. *After* Pic, 1897.

is derived from the Jenišovice hoard found near Mělník in Bohemia, in which a number of cups (like those in pl. 23, *5*, *6*) were associated with a giant Lusatian fibula (fig. 112, *5*) and its smaller variant (fig. 112, *4*), a tanged sickle, a knife blade bearing geometric decoration (fig. 112, *2*), pincers (fig. 112, *6*), spirals, a spiral armband (fig. 112, *1*), a spectacle brooch (pl. 23, *3*), a bracelet with spiral ends (pl. 23, *4*), rings (pl. 23, *1*), a triple necklace made of twisted bronze wire, conical ornamental plates (fig. 112, *3*), a double-conical amber bead, and other finds (Pič, 1899, pl. LXXXII; Kytlicová, 1959, figs. 11 and 12). A related assemblage of finds is known from another Lusatian hoard found at Seiffenau (Podgórnik) in the district of Zlotoria (Goldberg) in Silesia (fig. 113). In it appeared socketed celts of Lusatian type (fig. 113, *4*, *6*), a short spearhead with plain wings (fig. 113, *5*), a giant fibula (fig. 113, *2*) and rather massive bracelets and neck-rings, either round in cross-section or having the outer part ribbed (fig. 113, *7-10*). Another good example of the assemblages in which Jenišovice cups appear is the hoard from

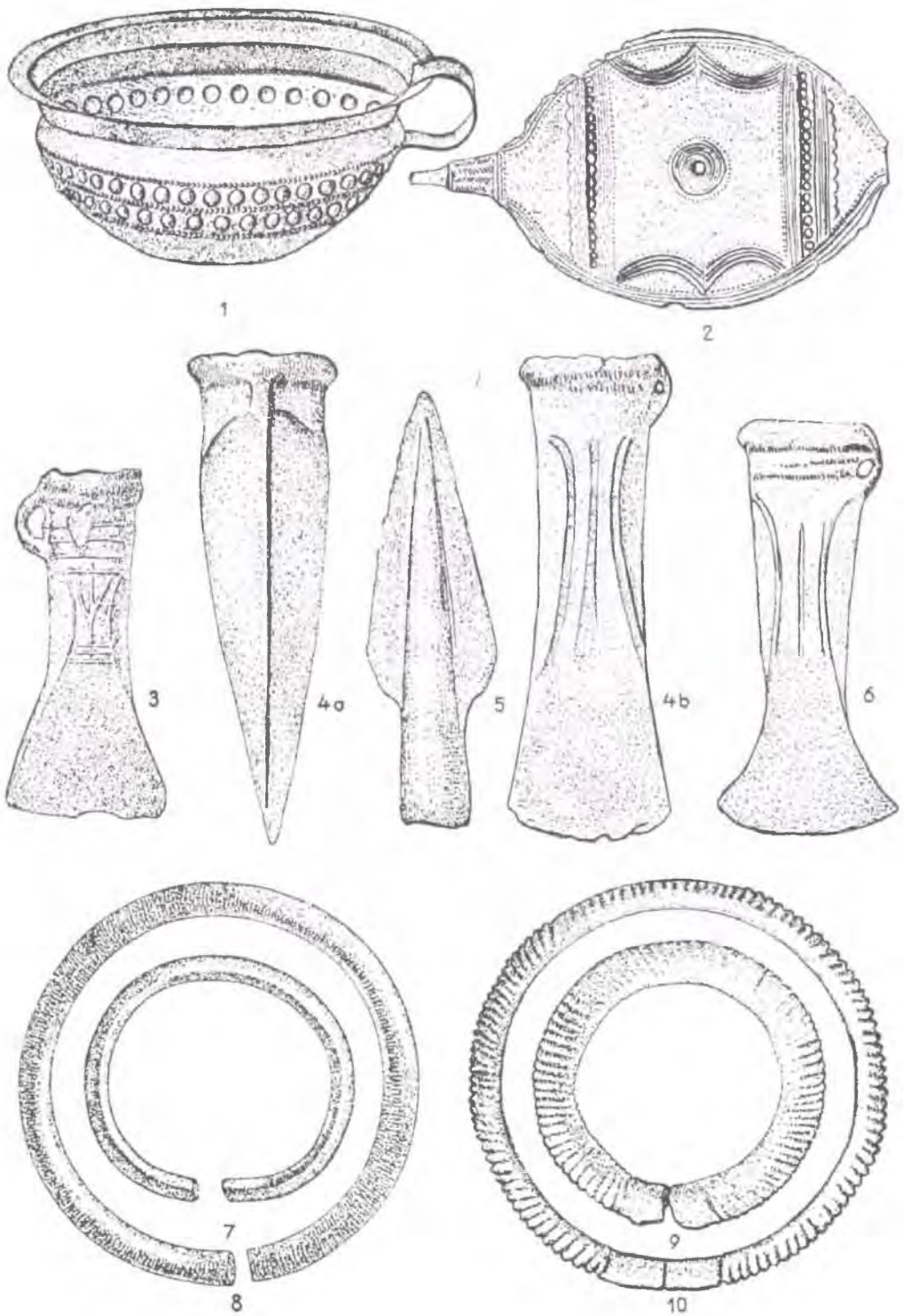


FIG. 113. Seiffenau (Podgornik) hoard, district of Zlotoria (Goldberg), Silesia. **1**, beaten bronze cup of Jenišovice type; **2**, middle part of a giant fibula with a flat bow; **3, 4, 6**, socketed celts; **5**, spearhead; **7-10**, bracelets and neck-rings. Scale approx. 1/2. *After* Sprockhoff, 1950b.

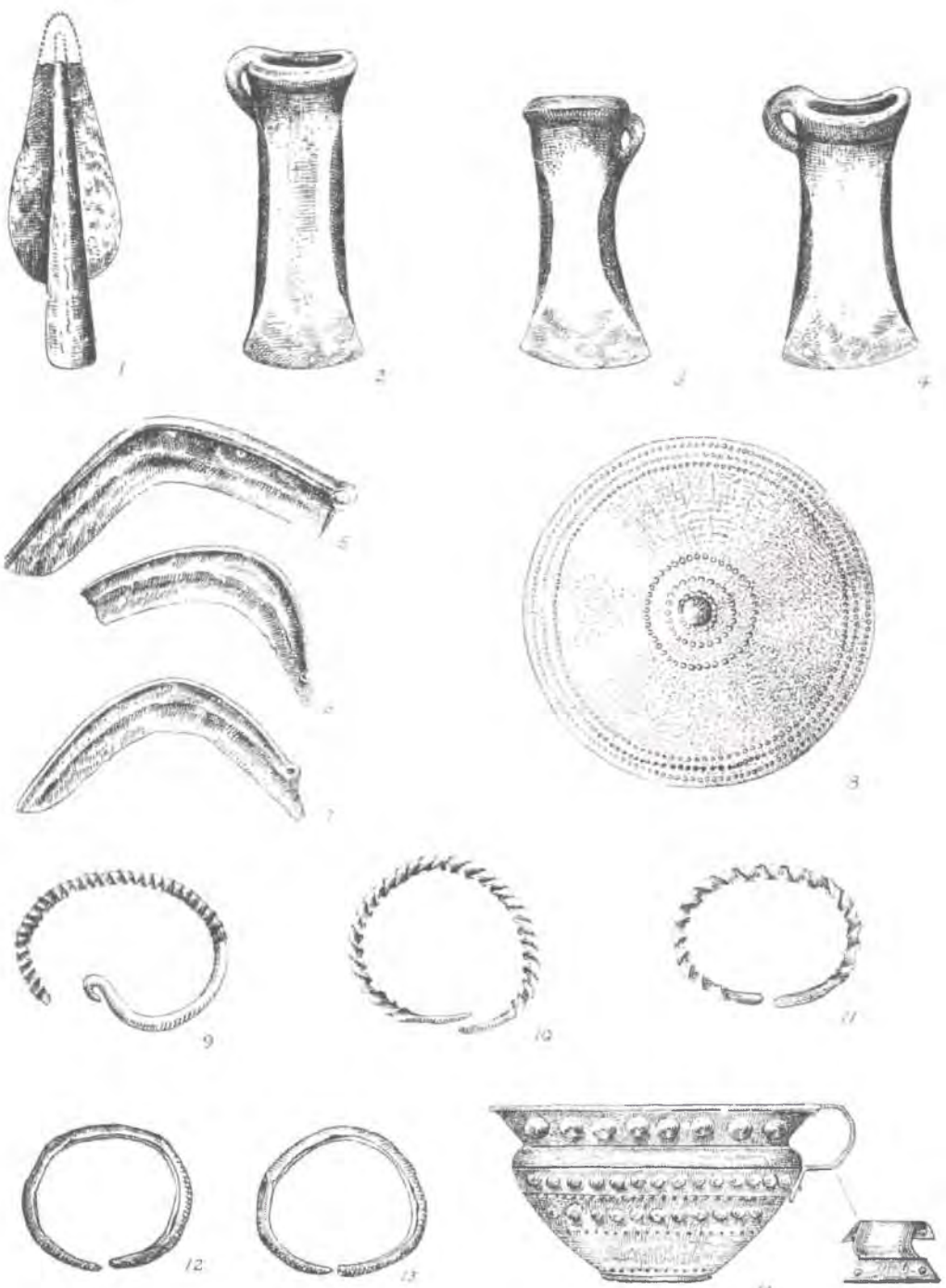


FIG. 114. Hoard of Biskupice, near Miechów, southern Poland. **1,** spearhead; **2-4,** socketed celts; **5-7,** button sickles; **8,** phalera; **9,** neck-ring; **10-13,** bracelets; **14,** cup of Jenisovice type.
Scale approx. 1/4. *After* Durczewski, 1948.

Biskupice near Miechów in southern Poland (fig. 114). In this hoard along with the cup (fig. 114, *14*) there were found button sickles (fig. 114, *5-7*), a short spearhead (fig. 114, *1*), socketed celts (fig. 114, *2-4*), twisted neck-rings and bracelets or those with imitation twisting, plain bracelets with plain and somewhat thinned-down ends (figs. 114, *9-13*), and a round convex plate (phalera) decorated with a convex button in the center and with concentric circles around it and around the edge (fig. 114, *8*).

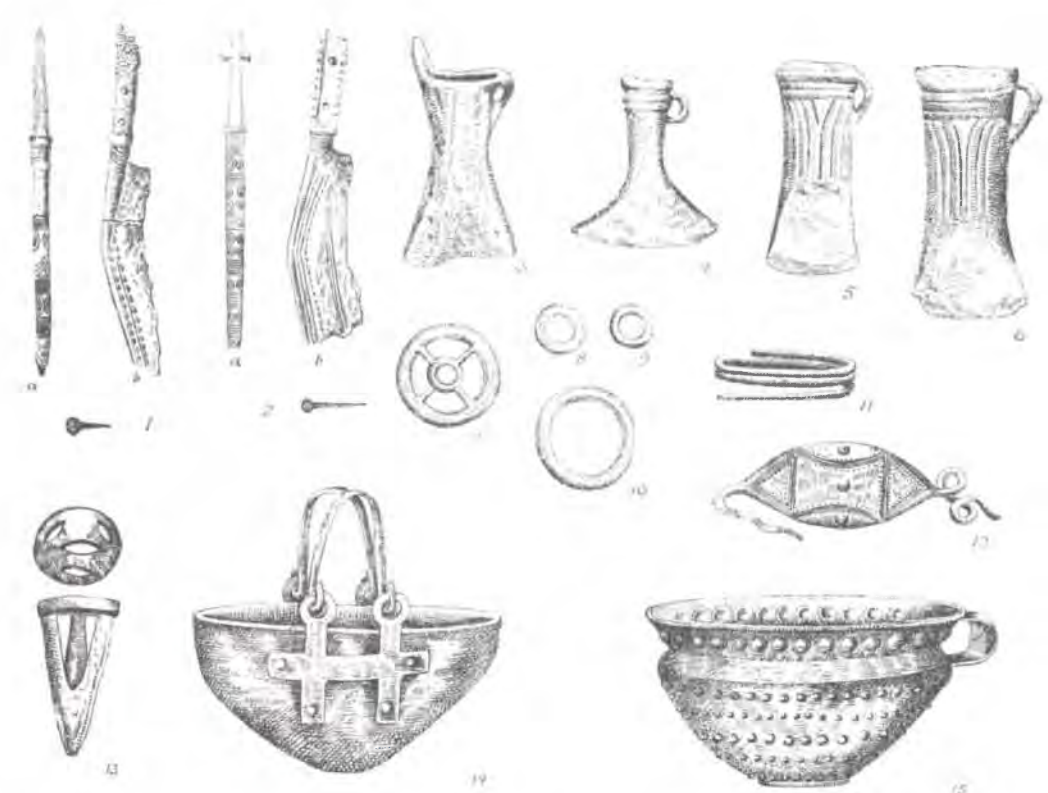


FIG. 115. Niedzieliska hoard, south of Lvov, western Ukraine (principal types). **1** *a*, *b*, **2** *a*, *b*, knives; **3-6,** socketed celts; **7-10,** wheel and ring pendants; **11,** hair-ring; **12,** fragment of a giant fibula; **13,** chape; **14,** T-handled cauldron; **15,** cup of Jenisovice type. Scale **1-6, 12-15** approx. 1/4; **7-10, 11** approx. 1/2. *After* Sulimirski, 1938.

In the east the Jenišovice cups appear as far as the upper Dniester area. They have been found together with T-handled cauldrons in hoards. Such cauldrons are quite frequently found in Hungary, Transylvania, and the western Ukraine. Jenišovice cups and T-handled cauldrons have appeared in association with many other finds in the huge hoard of Niedzieliska on the upper Dniester (fig. 115). This hoard best represents the types of eastern central European-Carpathian artifacts current during this period. In addition to the cups (fig. 115, *15*) and T-handled cauldrons (fig. 115, *14*), it contained curved knives with rivetted handles and geometric decoration over the blade and the back of the blade (fig. 115, *1*, *2*), a fragment of a flat-bow fibula (fig. 115, *12*), a spiral ring to be worn in the hair (fig. 115, *11*), rings of larger and smaller sizes (fig. 115, *7-10*), small socketed celts either plain with a projecting socket or ornamented with parallel grooves on the upper part (fig. 115, *3-6*), a chape for a spear scabbard (fig. 115,*13*), and fragments of an iron axe and anvil. The hoard of Kunisovce found near Horodenka in the upper Dniester area yielded five T-handled cauldrons, each of somewhat different size and form (Sulimirski, 1938, pp. 255-82, pl. VII).

Finds of similar forms occurring in association with T-handled cauldrons are known from Rumania and Hungary. In the hoard of Moigrád, northwestern Rumania, along with T-handled cauldrons and plain cups, there were short socketed celts with projecting sockets, spearheads with plain wings, a socketed chisel, slim bracelets with tapered ends, some decorated with clusters of vertical striations; rings, a bronze pommel, and several copper ingots (Nestor, 1935). Copper ingots also were found in the hoard of Nagyhegy northeast of Szentes in northeastern Hungary, together with T-handled cauldrons, a Jenišovice cup, fragments of a situla, socketed celts, sickles, and bracelets (Csallany, 1939). The tremendous Hajdúböszörmény hoard from northeastern Hungary contained a T-handled cauldron



FIG. 116. Some bronze objects from the hoard of Hajdúböszörmeny, northern Hungary. **1-3**, bronze-hilted swords; **4**, cup of Jenisovice type; **5**, situla; **6**, axe; **7**, helmet; **8**, T-handled cauldron. *After* Hampel, 1887.

(fig. 116, *8*), an A-handled cauldron, cups of Jenišovice type (fig. 116, *4*) and a large situla ornamented in bossed style, with water birds' heads flanking the sun wheel (fig. 116, *5*). In addition the hoard contained a late type of "Hungarian" axe with a shaft-tube (fig. 116, *6*), a helmet (fig. 116, *7*), bronze-hilted (fig. 116, *1-3*) and flange-hilted swords. Bronze hilts of Hajdúböszörmény swords had either disc (fig. 116, *1*) or dishlike pommels (fig. 116, *2*, *3*). The latter are typical of this phase.

The Hajdúböszörmény hoard with hundreds of bronzes is the most important find of this phase. Its name might well serve to designate the phase, instead of Jenišovice, if it were not so difficult to spell. Hajdúböszörmény and other hoards in northeastern Hungary and northern Rumania surpass in numbers of bronzes those of any other area of Europe. Two, at least, of the great hoards, Nagyhegy and Moigrád, were in all likelihood deposited by the smiths who produced these outstanding vessels, helmets, swords and tools, because ingots of copper were included. The upper Tisza valley in the Carpathian

foothills must have been the center of production from which bronzes diffused to all of central Europe, Italy, northwestern Europe, and southern Scandinavia.

The situlae or buckets such as that from Hajdúböszörmény (fig. 116, *5*) spread between Transylvania, Yugoslavia, Italy and Denmark (distribution map in Merhart, 1952, p. 35, Karte 6). Since they are of identical shape and the ornament of embossed hemispheres and points and of water birds' heads flanking the sun wheel is very similar (though not identical on all of the known situlae), they certainly have a great chronological value. The situlae were made of separate sheets for the walls and a separate sheet for the bottom part. The two handles were fastened to the vessel's shoulder by three rivets on each side. A situla, identical with the Hajdúböszörmény one, was found in the hoard of Unterglauheim in the district of Dillingen in Schwaben, Germany, together with a T-handled cauldron (similar to that illustrated in figure 116, *8*) and two beautiful gold bowls made of chased gold sheets ornamented in zones by embossed circles and ridges (Vogt, 1950, p. 225; Merhart, 1952, Abb. 3, Taf. 2, *8*; Müller-Karpe, 1959, Taf. 169). An analogous hoard was brought to light on the amber route in western Poland: in Biernacice near Turek (Koszańska, 1946). A situla of Hajdúböszörmény type, but with slightly different decoration, contained eight cups and a bowl decorated with a band of raised ridges over the upper part and rows of points and bosses below. The bowl may be of local make, since similar types appear in the Lusatian area.

In Denmark and northern Germany cups of Jenišovice type, called there the Kirkendrup type after Kirkendrup, Fünen where the type was found, and also T-handled cauldrons appear in association with finds of Northern Bronze Age IV. The beaten bronze cups and cauldrons are a good means for the synchronization of the Northern Period IV with the Urnfield *IV* phase of central Europe, with the finds of Hajdúböszörmény type in northern Hungary and northern Rumania and with the northern Carpathian culture of the same phase. The central part of Europe from southern Scandinavia in the north to the Balkans in the south was involved in a very active trade. Central European products occur with the northern assemblages and the northern products sometimes appear in central European assemblages. A Scandinavian tutulus of Period IV was found in the Pfeffingen hoard in Baden-Württemberg, southwestern Germany (Behrens, 1916, fig. 10; Müller-Karpe, 1959, Taf. 164, *6*). Eastern central European socketed celts with projecting sockets or knives with semicircular decoration like those from the Niedzieliska hoard (fig. 115, *1-3*) are found in northern Germany (cf. hoard from Bäk, district of Lauenburg: Sprockhoff, 1950, pl. 23).

Situlae and T-handled cauldrons of Hajdúböszörmény type are found as far south as central Yugoslavia. The hoard from Lukovac in northeastern Bosnia comprised fragments of a situla and a T-handled cauldron, a riveted dagger with a mid-rib, tanged sickles, socketed axes, an end-wing axe, geometrically decorated bracelets, an arc-fibula, and other finds (Čović, 1955, pp. 91 ff, pls. 1-2). This hoard is important for chronology because it contained the arc-fibula, an ornament widely distributed around the Adriatic Sea. They appear in the graves of Pantalica II stage in Sicily, and in the hoards and graves dating from the end of the Previllanovan and early Villanovan culture. The arc-fibula of Lukovac has an arc thickening in the middle, decorated with rows of herring-bone ornament and two knots (projections) on each side. One end terminates in a large loop, the other in a broad catch-plate. In Italy analogies for the Lukovac fibula are known from the urnfield of Bismantova in Emilia (Müller-Karpe, 1959, Taf. 85).

Urnfield *IV* very probably belongs to the tenth and early part of the ninth century B.C. It corresponds with the early Villanovan period in Italy (the Villanovan culture started around the tenth century B.C.: personal communication from Hencken, 1960). The Hajdúböszörmény-Jenišovice vessels indicate the beginning and end of this phase. They are later than Dresden-Dobritz vessels and both types do not appear together.

Central European forms continued to differ from the Ponto-Caucasian forms. There was no intermingling of central European and Caucasian or southern Russian forms.

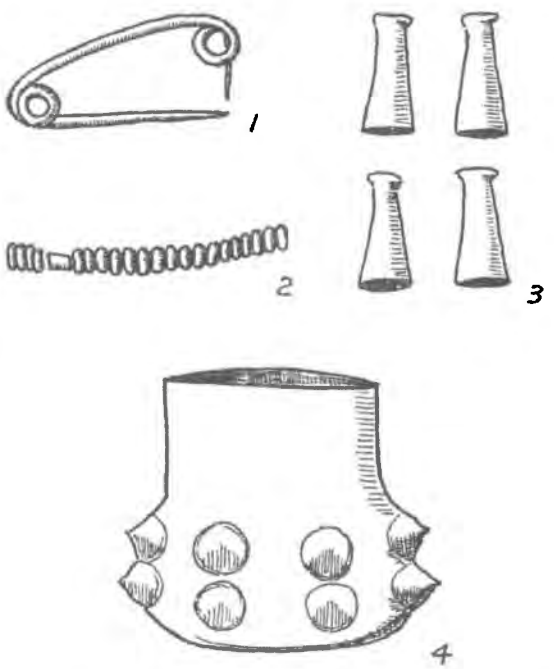


FIG. 117. Grave finds from Lukjanovskoe on the lower Dnieper. **1**, violin-bow fibula; **2**, amber and faïence beads; **3**, bronze tutuli; **4**, pot. Scale: **1-3** approx. 1/2; **4** approx. 1/5. *After* Tallgren, 1931a.

b. *Southern imports in the western Ukraine and the amber trade*

A few finds attest trading activities between the Baltic Sea, the western Ukraine, the eastern Mediterranean and Italy.

Of great interest are finds from Lukjanovskoe on the lower Dnieper in the district of Kherson in the western Ukraine. Small annular amber and faïence beads were found at the neck of a woman who lay in a grave covered with timber balks. They were associated with an asymmetric violin-bow fibula (fig. 117, *1*), known from Megiddo (layer Va) in Palestine dating from the tenth century B.C. (Megiddo II, pl. 223, *78*) and distributed in the eastern Mediterranean by the Phoenicians. Close parallels to the Lukjanovskoe fibula are known in the Pantalica II culture in Sicily, dated by Bernabò Brea to the tenth and ninth centuries B.C. (Archaeological Museum of Syracuse; Bernabò Brea, 1959, p. 157, figs. 12, 13). The Pantalica fibulae, according to Bernabò Brea, more probably belong to the early part of the ninth century B.C. (oral communication by Bernabò Brea in 1962). Besides the fibula and the amber and faience beads, the Lukjanovskoe woman was adorned with small, bell-shaped tutuli (fig. 117, *3*) which have analogues in Hungary (cf. Hampel, 1887, pl. CXXV, *8-10*). Also in the grave was a well-made gray pot with a cylindrical neck ornamented around the lower part with seven pairs of small bosses (fig. 117, *4*), a foreign type in the northern Pontic area.

Lukjanovskoe was probably on the eastern amber route leading from the Baltic via the Dnieper, the Black Sea, and the Aegean to the Near East. In the beginning of the ninth century B.C. amber must have been shipped to Assyria, as witnessed by the amber statuette of Ashur-nasir-apal, king of Assyria (885-860 B.C.), found on the banks of the Tigris, and by amber beads found in the foundations of temple towers of Asher and Babel, the capitals of Assyria (Spekke, 1957, Pl. IV, with reference to Olmstead). The chemical analysis of the statuette, about 20 cm high, has shown that it was made of Baltic amber.

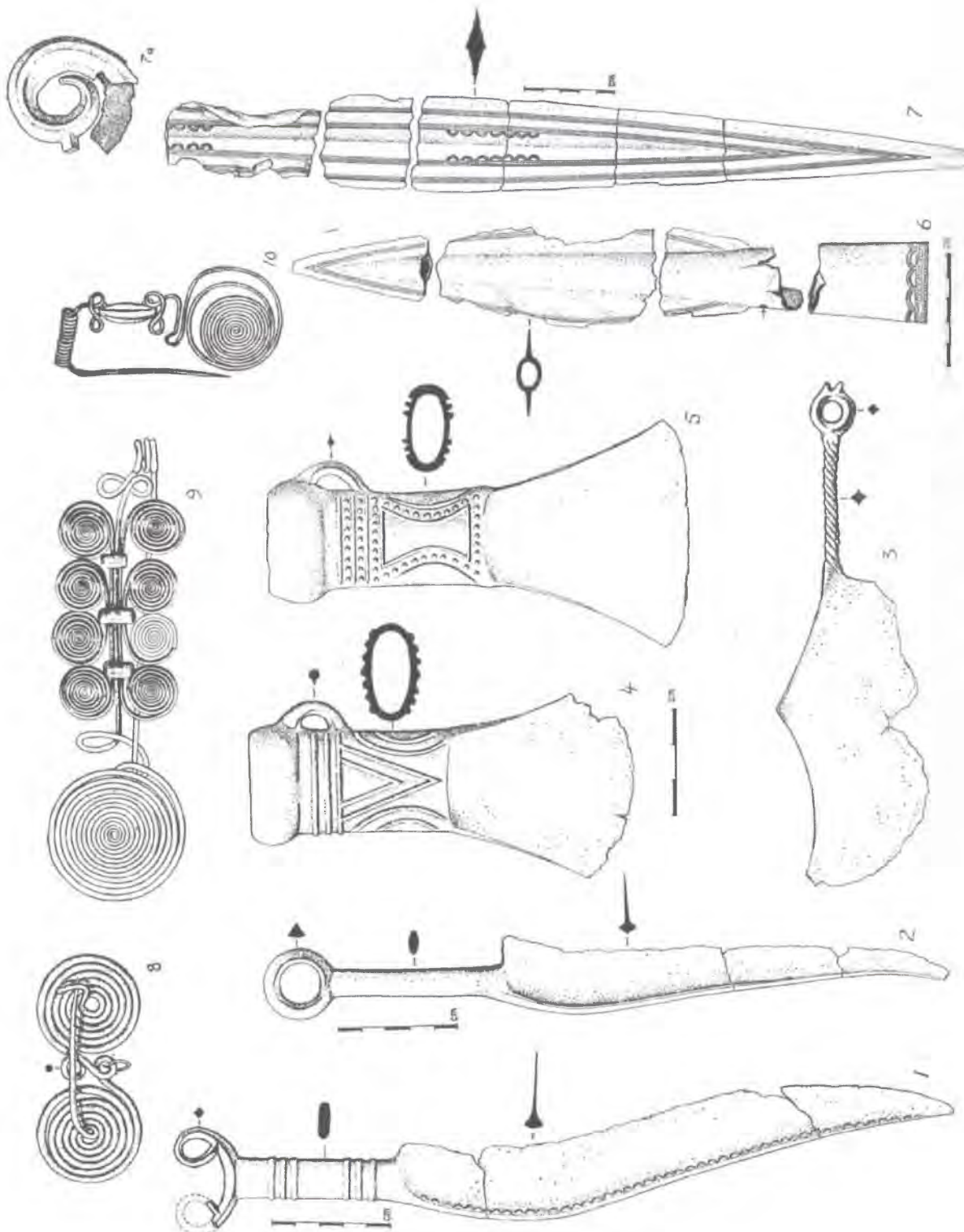


FIG. 118. Bronze artifacts typical of Urnfield V. **1**, knife with an antenna handle; **2**, knife with a ring handle; **3**, single-edged razor and a ring handle with ears; **4, 5**, socketed celts; **6**, spearhead; **7**, ornamented blade of an antenna sword; **7a**, fragment of an antenna pommel of the same sword; **8**, spectacle fibula; **9**, spiral plate fibula with eight spirals attached to the bow, called Posamenterie type; **10**, harp fibula. **1-8**, cremation double-grave at Velika Gorica near Zagreb, Yugoslavia, *after* Stare, 1957; **9**, Silesia, *after* Pfützenreiter, 1931; **10**, Hungary, *after* Hampel, 1897.

3. *Urnfield V in central Europe: 900/850 – ca. 750 B.C.*

Urnfield *V* or Hallstatt B_2 has been worked out by Müller-Karpe (1959) in the north Alpine area on the basis of typology, horizontal stratigraphy in large urnfields (like that of Kelheim in Bavaria), and of close ties with Villanovan Italy. Before his analysis, this phase was only vaguely defined and was lumped together with the so-called "Thraco-Cimmerian" period (which is now Hallstatt B_3 in Müller-Karpe's scheme). The contemporaneity of the central European Urnfield *V* phase with the cemeteries of Este *I* in Venetia, Bologna *I* in Emilia, Terni *II* in Umbria, and Tarquinia *I* in Etruria is indicated by the distribution in both areas of peculiar razors having a semicircular blade with a protuberance on the back part and a ring-handle ending in two ears or one projection (fig. 118, *3*), knives and swords having "antenna" handles (like fig. 118, *1*), long vase-headed pins (pl. 69, *1*), massive arc fibulae, bronze cups with a high raised handle, and helmets. Close similarities can be observed in forms and geometric decoration of knives, swords, spearheads, razors, and other objects, and in the application of water bird figures or heads for decorative purposes.

Most of the artifact forms continued from the preceding phase, and there was a parallel development of forms in central Europe and in Italy. Old forms were refined or more profusely decorated, and many new variants of the same basic types current in Urnfield *IV* appeared.

Riveted knives went out of fashion. Now they had tangs or bronze handles ending in an "antenna" (a semicircle with spiralled ends) or a ring (fig. 118, *1*, *2*). The back of the blade of the more elaborate specimens was decorated with rows of semicircles (fig. 118, *1*), striated triangles, triangles combined with semicircles, and groups of striations.

Socketed celts were of slender form and usually decorated with a chevron motif and semicircular incisions or ridges (fig. 118, *4*, *5*). Such a motif was probably an imitation of wings, which were still on wing-axes. Celts with upward-projecting sockets continued to be made in the Carpathian region (fig. 243, *6*; 319, *6*). Wing-axes developed into end-wing types (fig. 243, *3*, *4*). Tanged sickles with or without a dorsal rib continued (figs. 243, *7*, *8*; 319, *1*, *2*).

Spearheads were longer, of a willow-leaf form, and had an angular junction with the socket. The showy specimens were decorated with parallel lines along the edges and with semicircles and parallel lines at the mouth of the socket (fig. 118, *6*). A new series of swords had a long duration and continued into the Early Iron Age. The more elaborate of these swords had blades decorated with groups of parallel lines, semicircles, dots, and sometimes stylized water bird heads.

The decoration of blades was particularly typical of antenna swords, but it also appeared on swords which represent the continuing Urnfield *IV* types: those with blades which widened markedly near the point, hilts decorated with three horizontal and striated ribs, disc-shaped pommels, and hand guards adorned with stylized water bird figures or striated triangles (known as the "Liptov type"-figs. 242 A and B; 243, *2*; pl. 78, *1-3*), and those with large dish-like pommels. The continuation of the latter types in Urnfield *V* is shown by their association with other finds diagnostic of this phase. Dish-like pommels were not confined to Urnfield *IV*, as Müller-Karpe assumes (1961). The Urnfield *V* swords had considerably larger dishes, however. Generally, swords of this phase were more sophisticated.

In addition to antenna, disc, and dish pommels, richly decorated specimens occasionally had flattened spherical pommels (fig. 242B, *2*). Spherical pommels are diagnostic of this phase, but, like those with antenna pommels, they continued into the Early Iron Age (the "Thraco-Cimmerian" or "Hallstatt B_3" phase). Flange-hilted swords with riveted hilts were still used (pl. 78, *4*, *5*). Urnfield *V* swords had smoothly sloping hand guards, while later (Hallstatt B_3) swords had projecting and considerably shorter hand guards.

The range of distribution of most of the above mentioned artifact types, and particularly of swords, is very wide: between southern Scandinavia, Italy and Rumania, between eastern France or western Switzerland and Poland. The swords, knives, razors, spearheads, socketed celts, and tanged and button

sickles found all over this area certainly show a stylistic relationship, as was the case during all Urnfield phases; but they are not identical. Many variants exist, indicating many areas of production. However, close relationships between them suggest that most of the forms stem from one basic tradition or form-giving area. The problem of which metallurgical center was the most powerful and most creative can be clarified only after metallurgical studies have been completed; however, typology and statistics definitely indicate the Carpathian center in northeastern Hungary and Slovakia as one of the most important; actually it is the same center which had shown the strongest influence all over central Europe during the Urnfield *IV* phase. This particularly pertains to the production of swords.

From the land between the Tatra mountains in Slovakia and the upper Tisza basin in northeastern Hungary come renowned hoards with well preserved swords and other objects: Zsujta near Abaúj in northeastern Hungary with eight bronze-hilted swords, four spearheads, three bracelets, and a mounting in the shape of a bird's head (fig. 242 A, B, C); Komjátna in the district of Liptov, south of the Tatras in Slovakia (which gives its name to the "Liptov type" swords with disc-shaped pommels of this phase). This latter hoard contained 19 swords, most of which are close to those illustrated in figure 242 A, *2*, *3* (all 19 swords are illustrated by Müller-Karpe, 1961, Taf. 29), bronze belts with pointillé decoration, a Posamenterie fibula, a fibula with a large spiral catch-plate and eight spirals attached to the bow (like fig. 118, *9*), spiral arm-bands, fragments of bronze vessels, socketed celts with projecting mouths, button sickles, and water bird figurines used for the decoration of axle caps (pl. 64); Podgorjany (Podgořany, Podhering) near Beregovo in the Carpato-Ukraine contained 14 swords including the bronze-hilted type with dish-like pommels and the flange-hilted type with richly decorated blades (fig. 242 C, *2-4*), some of which had antenna handles (Hampel, 1887, pls. *XC*, *XCI*; Müller-Karpe, 1961, Taf. 42); the recently discovered hoard of Vyšný Sliač, district of Ružomberok in Slovakia, yielded four bronze-hilted swords (pl. 78); and countless other hoards. There is no other area of Europe which can compete with northeastern Hungary and Slovakia in number and size of bronze hoards. In the upper Danube-north Alpine region and elsewhere in central Europe, swords usually appear singly in graves or as isolated finds.

The central European sword series have close relatives in central and northern Italy. Some swords in Italy seem to be definite imports either from the Alpine area or the Carpathian basin. Among these are swords of Liptov type, and those with large dish-like pommels found as isolated examples in northern Italy (Foltiny, 1960; 1962). Some, although they show close form relationship to central European specimens, could have been produced locally after imported examples. Antenna swords in central Italy, as known from Tarquinia, Perugia, Bologna, Vetulonia, Terni, Este, and elsewhere (Müller-Karpe, 1961, Taf. 55), must have been introduced by imports from central Europe, which soon thereafter were imitated by local smiths. The same can be said about knives with antenna handles and single-bladed razors with a projection of the back and a ring handle with ears. Villanovan Italy before the Greek colonies and the rise of the Etruscan civilization remained largely dependent on central European influences, but a trend toward emancipation is noticeable, and at the end of this phase Villanovan products diffused to central Europe.

One of the probable imports from Italy is the helmet discovered north of the Carpathian mountains, on the upper Dniester in Zavadintsy (in Polish: Krzemienna), near Kamenets Podol'skij. The helmet belongs to the Villanovan culture as represented at Tarquinia and Veji in central Italy (Müller-Karpe, 1959, Taf. 28, 14; Taf. 36; *4*). However, Merhart points out that this kind of helmet must have originated in central Europe, because he has found forms earlier than the Italian in western Germany and France. (Merhart, 1941, p. 15; 1958, p. 131). The helmet of Zavadintsy is decorated with bosses around the lower part and across the wide pointed crest which have been embossed from the inner side. Two rows of large bosses encircle the helmet, while one row appears along the crest. Below the crest and running along the seam of the two bronze sheets, from which the helmet has been fabricated, are three protruding false rivets. They served as decoration; the true rivets have been covered by a rectangular plate. Along the

bottom are small holes which apparently served for attachment of a leather lining (pl. 24). The Zavadintsy helmet is unfortunately an isolated find (Szlankówna, 1938), but its intimate relationship to the helmets found in Tarquinia and Veji allows it to be placed in the eighth century B.C.

Ornaments, like pins, bracelets, and necklaces, show a large variety of forms and decorations in separate Urnfield provinces, but fibulae were widely diffused and should not be ignored as outstanding diagnostic objects of this phase. The most distinctive central European fibula was a a large specimen with eight spiral plates attached to the bow and with a very large spiral catch-plate (fig. 118, *9*). The type is called "Posamenterie" after site in Silesia. They are found between the Baltic and the Black Seas, but their origin very likely lies in the Carpathian basin, where they usually appear in association with swords, celts, and other objects typical of this phase (as, for example, in the above mentioned hoard of Komjátna in Slovakia or in the hoard of Aranyos *II* in the district of Borsod, northern Hungary: fig. 243, *11*). In the hoard of Bîrlad in eastern Rumania, this type of fibula was found together with a socketed celt and two iron lugged axes (fig. 159).

The "spectacle" fibula, made of two spiral plates connected in the middle with a wire curved to form a figure-eight (fig. 118, *8*), was another popular and widely diffused specimen. Its prototype, a fibula made of spiral plates connected with a wire, is present in the Urnfield *IV* phase (pl. 23, *3*), and therefore its central European origin cannot be doubted. From their home, which was very likely in the Carpathian basin or the middle Danube region, they diffused to the Baltic area and through the Balkans, where they appear in the ninth and eighth centuries B.C. A number of new variants developed from them in Greece and spread in the eighth and seventh centuries through the East Mediterranean and reached Italy and Sicily with the earliest Greek colonists (Alexander, 1962). Before then, they are unknown in Italy. Spectacle fibulae had a long duration; during the ninth and eighth centuries B.C. the shape hardly changed, and therefore it does not serve as well for chronological purposes as the large Posamenterie fibula type, which seems to be strictly confined to the Urnfield *V* phase.

The third fibula type, with spiral catch-plates, in the European series is the so-called "harp fibula", which vaguely resembles a harp shape (fig. 118, *10*). On one end it has a large spiral catch-plate, on the other, a vertical spiral tube connected by a bow made of the same wire coiled twice in a figure eight design and markedly thickened in the middle. It appeais in Urnfield *V* hoards and graves in the Carpathian basin, eastern Alpine area, and in northwestern Yugoslavia (for example: in the hoard of Miskolc, northeastern Hungary: Müller-Karpe, 1961, Taf. 41, *D*; in the cemetery of Maria Rast, Slovenia: Müller-Karpe, 1959, Taf. 111, *C*; Taf. 112, *A*; Taf. 118; *18*, and in the hoard of Velika Gorica, Croatia: Staré, 1957). In the subsequent phases it developed into a simplified version with an even, uncoiled bow and diffused all over central Europe and up to the Baltic Sea. Its life span is from the ninth to the sixth centuries B.C. The harp fibula did not penetrate the Apennine Peninsula, where the bow fibula and its variants with loops on the bow or with a large disc-shaped catch-plate dominated the scene.

The central European zone of influence ended in Moldavia and the western Ukraine in the east; the eastern elements did not penetrate the central European realm. One spearhead of central European appearance comes from the lower Dnieper area (Tsiurupinsk, district of Kherson). The socket was decorated with typically central European stylized water bird heads and the blade had striated triangles (fig. 404; *4*). Close parallels are known from the Carpathian basin. The spearhead is the only tangible indication of existing contacts between central and eastern Europe. In this phase, the late Timber-grave people in the lower Dnieper region probably were not ignorant of what was being produced in central Europe. Soon thereafter they borrowed antenna pommels and attached them to their akinakes daggers.

4. *Conclusions*

From the end of the twelfth to the middle or end of the eighth century B.C., the following periods characterize the several regions of Europe:

Greece: End of the Sub-Mycenaean, Protogeometric, and early Geometric.
Italy: Previllanovan and early Villanovan in central Italy. Pantalica *I* and *II* in Sicily.
Central Europe: Late Urnfield culture, Urnfield III-V.
North of the Carpathians: Late North Carpathian Bronze Age culture.
Southwestern Baltic Area: Late Bronze Age Baltic culture.
Northwestern Europe: Northern Area Period *IV*.
Southern Russia: Late Timber-grave culture.

At the end of the eighth century B.C., the Scythians, decendants of the Timber-grave people, expanded by conquest: they ousted the Cimmerians from the northern Pontic region. Before that, in the ninth century B.C., they had entered the Caucasus and even appeared on the Urartian and Assyrian borders. The period of orientalization in the eastern Balkans and central Europe started at the same time. In central Europe this phase falls at the end of the late Urnfield period (Hallstatt B_2 in Vogt' s scheme or B_3 in Müller-Karpe's), and in the Northern Area Bronze Age this is period *V*. In Bulgaria, Rumania, Hungary, and lower Austria, eastern elements appeared in particular abundance. It was believed that the Cimmerians, driven by the Scythians, entered the eastern Balkans and eastern central Europe, and that their mixture with the Thracians produced a hybrid culture: the Thraco-Cimmerian.

Many new elements in art style which now appeared between the Black Sea, central Europe, and northern Europe are explicable by the influence of the Caucasian Koban style. They are evident in combinations of sculptured horned animals or horses on weapons, ornaments, or pottery, in the application of Kobanian horns as decoration, in zoomorphic fibulae representing a fantastic animal with open jaws and upraised tail, in the use of horned animals as pendants, in the attachment of horns to ornaments (especially to fret-worked pendants) or to jingle bells. The sudden appearance of equestrian equipment *en masse* coincides with the introduction of the above-mentioned Caucasian art motifs. In Bulgaria, Rumania, and Hungary, bridle-bits, cheekpieces, and ornamental plates identical to Koban types have been found. Soon thereafter, local variants of oriental bridles and other horse gear occurred all over eastern central and central Europe.

There is no doubt about the strong eastern influences on the eastern Balkan, central European, and even northern European cultures. The role of Koban art in the development of Hallstatt art has been widely discussed since the end of the nineteenth century: Koban and Hallstatt were even interpreted as a single cultural sphere. It is certainly true that the birth of the Early Iron Age Hallstatt art owes much to the Kobanian influence. The gradual disappearance of cremation rites in eastern central Europe and the timber construction in graves can also be ascribed to the influence from the east. The question of who the people were who brought such great changes to the eastern Balkans and eastern central Europe will not be analyzed here, but in my belief they were not the Cimmerians, but their conquerors, the proto-Scythians; the Timber-grave people who, by occupying the whole eastern Pontic realm and the Caucasus, and by borrowing many cultural elements from Koban, changed their own culture and exercised strong influences on the west by their actual incursion as far as the middle Danube. Like their forefathers 1600 years earlier, the Kurgan people, the Proto-Scythians orientalized Europe and accelerated new technological developments. This new era belongs to the Iron Age.

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IV

THE CULTURES IN EASTERN CENTRAL EUROPE

East of the middle Danube in eastern Hungary, eastern Slovakia, Transylvania, and Moldavia (fig. 119), we come across the cultural groups known by the names Periam-Pecica (I shall call it Pecica), Nagyrév, Hatvan, Otomani, and Monteoru, not to mention other names used for the same cultural groups, variants, or for individual chronological phases. West and south of the middle Danube in western Yugoslavia and western Hungary there were several other Early Bronze Age groups: the Incrusted Pottery culture in western Yugoslavia and Pannonia (in Hungary called the "Transdanubian culture") and the Vatya group south of Budapest on the Danube. They will not be described here, but their names will be mentioned inasmuch as they were in contact with their eastern neighbors. The Bronze Age of Bulgaria will not be covered since as yet it is insufficiently known. The southern limit is the Belgrade-Bucharest line.

The progressing differentiation into many cultural units during the beginning Bronze Age and the variety of ceramic styles and the rapid changes of forms of artifacts were caused by mixtures of people, the growth of metallurgy, and trade.

In this region, during the Chalcolithic period in the third millennium B.C., there existed the Tisza culture with its several phases, Tisza, Tisza-Polgár, Bodrogkeresztúr; the Baden or Chanelled Ware culture, a rival group to the Tisza culture in northern Hungary and Slovakia, and the Salcuţa and Coţofeni, the latter also called Kostolac, "Linsenkeramik", or "Furchenstichkeramik" in the greater part of Transylvania and Oltenia. The continuity in time and space of these late Neolithic and Chalcolithic groups was disturbed by the intrusion of the Kurgan people from the east. Eastern Slovakia, northeastern Hungary, Transylvania, and the eastern parts of Rumania were hit by the vigorous expansion of eastern peoples, just as the rest of central Europe, the Baltic area, Serbia, eastern Bulgaria, and the Aegean were (map 1). Traces of the intruders are seen in the appearance of foreign elements, particularly "kurgans" (barrows), battle-axes, the cord-decoration on pottery, ochre in the graves, and many other elements which link them to the contemporaneous culture north of the Black Sea and the lower Volga area.

The presence of the kurgans in Transylvania and northeastern Hungary had already been noted by Childe in 1929 (Childe, 1929, Map VI) and mentioned in detail by Nestor 30 years ago in his excellent work on the prehistory of Rumania (Nestor, 1933b). The number of newly discovered kurgans steadily increases. Many recently excavated kurgans in Moldavia and Dobruja (Dragomir, 1959; Petrescuc Dîmboviţa, 1950, 1953b; Rosetti, 1949) form a link between the Transylvanian kurgans and the Pontiones. From the objects found in the habitation sites and graves, and from the grave types themselves, it can be seen that this Kurgan culture existed through several phases along with the persisting autochthonous culture; finally, through the absorption of local cultural elements, it developed its hybrid character.

The newcomers changed the course of the evolution of Bronze Age culture. The Chalcolithic cultures of eastern Rumania and Transylvania, the Cucuteni (Tripolye), the Gumelniţa, and the Salcuţa cultures, were either disturbed or strongly influenced by them. The earliest finds of Kurgan appearance have proved to be contemporaneous with the end of the Tisza-Polgár and the Bodrogkeresztúr, Salcuţa, Cucuteni A_3 (Tripolye B_1), and Gumelniţa groups. In the cemetery of Decia Mureşului in the district of Torda-

Aranyos, Transylvania, ochre graves with skeletons in contracted positions were found (Kovacs, 1944). Among the grave goods there were copper axe-adzes and stone maceheads with four semiglobular heads. The adzes indicate contemporaneity with the end of the Tisza-Polgár and the Bodrogkeresztúr phase of the Tisza culture; the maceheads show a chronological tie with the end of the Mariupol' phase north of the Black Sea which coincides with the earliest appearance of copper in the lower Dnieper and the Sea of Azov (Gimbutas, 1961).

To the same early wave of the Kurgan people moving westwards across the Ukraine to Transylvania and through Moldavia and Dobruja down to the southern Balkans belong tumuli with large rectangular pit-graves and skeletons lying on their backs with their legs contracted upwards. Pit-graves were lined with boards, as remains preserved in several cases show. Such early Kurgan graves are reported from Moldavia and Dobruja, for instance, Glăvăneştii Vechi kurgans north of Iaşi, Moldavia (information from Dr. Comşa, Bucharest) and they have exact parallels in the lower Dnieper and the lower Volga area. An ochre grave from Hamangia in eastern Rumania gave the radio-carbon-14 date 2140 ± 160 B.C. (Kohl and Quitta, 1963).

Peculiar round or flat figurines portraying boar's heads, made of diorite and presumably used as maceheads, discovered in Moldavia, Dobruja, and Transylvania, also belong to the expanding Kurgan people (Nestor, 1933b, 1955; Popescu, 1937-40; Berciu, 1954). In the local Neolithic and Chalcolithic cultures nothing similar was found, but an analogous portrayal of a horsehead is known from the eastern Caucasus (Terek Makhteb near Groznyj in Dagestan: Berciu, 1954). The figurine from Salcuţa (Nestor, 1933b, Taf. 2, *1*, 2; Berciu, 1939, fig. 74) corresponds in time with the end of the Salcuţa culture (Berciu, 1954). Another sculpture of a horsehead from Casimcea in Dobruja was found in an ochre grave together with triangular flint points, knife blades, and celts (Popescu, 1937-40). An inventory of this kind can be considered as early Kurgan. In Greece at Lerna the destruction layer probably in connection with the coming of the people from the north is dated to the end of Early Helladic II, which is *ca.* 2300-2200 B.C. (Caskey, 1960, pp. 285-303).

The next phase of the Kurgan culture in eastern central Europe is typified by pottery decorated with cord impressions, usually in the form of hanging triangles with rows of incisions forming a herringbone motif and ridges. Examples come from the habitation site at Jigodin in the district of Miercurea Ciucului (Székely, 1955, p. 847), the habitation site between Sepsiszentgyörgy and Gidófalva in the district of Háromszek on the Olt River (Roska, 1925), and the Izvoarele kurgans, district of Turda, Transylvania (Nestor, 1933b, p. 67). This type of pottery corresponds with the later phase of the Kurgan culture, which is characterized in addition to corded pottery by such artifacts as hammer-headed pins of copper or bone, ornamental plates, awls, and other artifacts of the North Caucasian Middle Kuban type. In central and northern Europe this is the period of the Corded Pottery culture. The Transylvanian culture called Coţofeni, which succeeded Salcuţa, contains many Kurgan elements. Its bowls, jugs, and larger vases were decorated predominantly with diagonally incised rows forming herringbone patterns or hanging triangles (cf. Berciu, 1939, figs. 86-94), motifs which are seen on corded pottery from southern Russia to Scandinavia. These foreign elements led the earlier German archaeologists like Reinerth (1929) and Schroller (1933) to regard this group as "Nordic", but these "Nordic" elements in Coţofeni belong to the Kurgan influences.

The Corded phase was succeeded by the Usatovo or Gorodsk-Usatovo in the western Ukraine and Moldavia, Glina III around Bucharest and Schneckenberg in Transylvania, to which I shall return later.

Changes in the physical type also speak for the appearance of new people. The measurements of the skulls from various phases of the Kurgan culture in Moldavia and Transylvania have shown that physically these people were related to the long-headed and tall-statured people of southern Russia, described as "gracile Proto-Europeans with eastern Mediterranean elements", or as "Andronovo" type because of their similarity to the Andronovo Bronze Age people in southern Siberia (Necrasov, 1962). Skulls from the cemeteries of Glăvăneştii Vechi, Corlăteni, Stoicăni, Holboca, and Brăiliţa in Moldavia

have been examined. Except for Glăvăneştii Vechi, these cemeteries date from the Usatovo period (Necrasov and Cristescu, 1957). The Early Bronze Age Schneckenberg people of Transylvania around Braşov (Schroller, 1933, Taf. 55, *1*), the Monteoru people in eastern Rumania (Necrasov, Floru and Nicolaescu-Plopşor, 1959), and the Otomani people in Transylvania, northern Hungary, and eastern Slovakia were also of eastern (Kurgan) appearance. Eighty Otomani skulls were examined from northeastern Hungary and led Dr. Nemeskéri to assume the skulls to be of eastern origin. There were also some brachycranial elements and those common to northern central Europe and the east Baltic area (verbal communication from Dr. J. Nemeskéri, 1960).

The physical type of the people living in the lower Tisza and lower Mureş basins was different; the Pecica people were brachycephalic and also showed many of the old Mediterranean elements (data from the cemetery of Szöreg near Szeged: information from Dr. Nemeskéri). This culture seems to have escaped the infiltration of the Eurasiatic steppe people. The Pecica people are probably descendants of the Neolithic-Chalcolithic Tisza culture. Their culture continued without major disturbances throughout the Early Bronze Age. However, there was a good deal of influence from the east in the area of the present boundary between Hungary and Rumania and the eastern portion of the Pecica culture was gradually absorbed by the Otomanians.

The Early Bronze Age Nagyrévians of northern Hungary and southwestern Slovakia cremated their dead, and we do not know what their physical type was. Culturally they are related to the Pecica group. Western Hungary also shows the persisting local population. The dolichocranial elements continued, but some groups indicate western or Alpine contacts through the appearance of the brachycranial elements and perhaps Bell Beaker influence. The Vatya group south of Budapest differed from its neighbors in that its people were not of Mediterranean type, but of ancient European type called "Crô-Magnoid A" (data from the cemetery of Dunapentele; information supplied by Dr. Nemeskéri, 1960).

In the Carpathian foothills and in Transylvania metallurgy was known from the last centuries of the third millennium B.C. The early metal artifacts are ascribed to the Tisza-Polgár and Bodrogkeresztúr period of the Tisza culture, the Decia Mureşului group (the Bodrogkeresztúr-Kurgan mixture), Baden or Channeled Ware, and Cucuteni B. The chemical analyses have shown the usage of local ores producing pure or impure copper and alloys with arsenic (Nestor, 1955; Novotná, 1955). The concentration of the distribution of the copper implements, flat axes, axe-hammers, axe-adzes, and shaft-hole axes, is along the southern fringe of the Carpathian mountains, in northern Hungary, Slovakia, and northern Rumania (Roska, 1942; Driehaus, 1952). There are traces of the Kurgan settlement all over this region, and it looks as if these eastern people brought new impulses for metallurgical developments. They were already acquainted with a rather developed technique in metallurgy inherited from the Caucasian center, where alloys of arsenical copper with antimony were made. The Usatovo people west of the Black Sea used copper alloyed with antimony (Nestor, 1955). Silver was known to the Kurgan people, and silver spirals were found in the ochre graves in the kurgans at Pleniţa and Perişor in the district of Dolj, Oltenia (Nestor, 1933b, p. 67) and in the northern Pontic catacomb-graves. In Devnia near Varna in eastern Bulgaria an ochre grave of early Kurgan type discovered in 1958 contained 32 gold rings made of wire rectangular in cross-section in addition to many flint knives and points, a copper flat axe, a long chisel, and an unfinished artifact (Archaeological Museum in Varna; information from Prof. D. Berciu). This grave could have belonged to a Kurgan trader or metallurgist. The gold rings were probably carried as raw material. The appearance of some metal forms like shaft-hole axes and hammer-axes, in eastern central Europe is connected with influences from the Caucasus. Copper hammer-axes are closely related in form to the Ponto-Caucasian hammer-axes of stone. Shaft-hole axes have prototypes in the Early Kuban or Majkop period in the northern Caucasus.

I shall next survey two groups of cultures. To the first belong those connected with the local Neolithic or Chalcolithic culture. The representatives are the Pecica group in the lower Tisza and Mureş

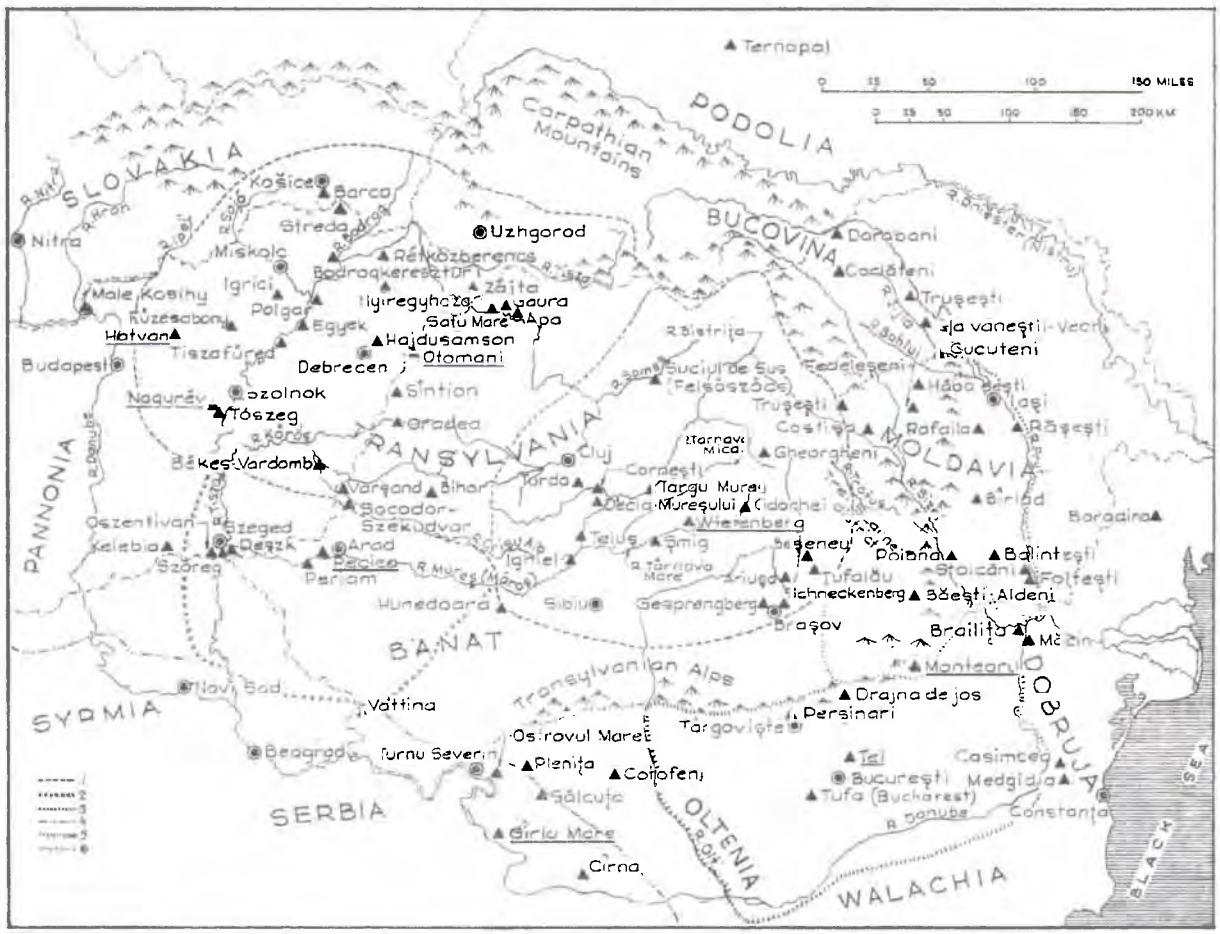


FIG. 119. Sites mentioned in text and cultural groups in eastern central Europe during the middle of the second millennium *B.C.* **1,** Otomani and Wietenberg; **2,** Pecica; **3,** Monteoru; **4,** Gîrla Mare; **5,** Tei; **6,** Verbicioara.

basin, the Nagyrév group in eastern and northern Hungary and Slovakia, and the Hatvan group in eastern Hungary, Slovakia, and northwestern Rumania. To the second belong the Otomani of Transylvania and Monteoru of eastern Rumania, which can be considered to be either of Kurgan origin or hybrid.

A. LOCAL SURVIVALS DURING THE EARLY BRONZE AGE

1. *The Pecica culture in the lower Tisza and lower Mureș area*

The culture in southeastern Hungary and southwestern Rumania represents a cultural unity during the early part of the Bronze Age. It was like a small island surrounded by rival warlike groups (fig. 119). There is a series of names in use, Periam (Periamuș in Rumanian, or Perjámos in Hungarian), Pecica, Periam-Pecica, and Szöreg. I prefer Pecica, for this site on the lower Mureș River near Arad in its 16 horizons of habitation best shows a gradual development. The continuity can be proved throughout the first part of the Bronze Age, between the Chalcolithic period and the sixteenth and fifteenth centuries B.C., when the Pecica culture was overshadowed by northeastern neighbors, the Otomanians, who seem to have occupied the northeastern part of its territory, and in the Middle Bronze Age by the central

European people from the north. Through these events the probable descendants of the Neolithic-Chalcolithic Tisza culture, which showed a continuous affiliation with the south, came to its end.

A number of Pecica sites were discovered in tells or mounds placed on river terraces and caused by the accumulated rubbish of prolonged occupation. In regard to stratigraphy, one of the most valuable sites is Pecica, Pécska in Hungarian. The tell was excavated in 1898 by L. Dömötör and in 1910, 1911, 1923, and 1924 by Roska (Roska, 1923a; 1923b). All 16 horizons, many of which measured only from 7 to 15 cm. in thickness, yielded finds. Pottery obtained from almost all horizons shows the whole gamut of pottery forms, and the site is unique in the presentation of pottery evolution (fig. 120). Pottery from horizons I to X have analogies in the habitation site of Periam, located also in the lower Mureș area. Horizons XI to XVI demonstrate further development.

A well-dug site in eastern Hungary giving evidence for stratigraphy is the fortress of Várdomb near Békés, east of the Tisza. It was excavated by Banner (Banner, 1956) and later by Bóna. The fortress was on an artificial islet flanked by the ancient watercourse of the Fekete Körös River. The four trial trenches yielded from 12 to 14 habitation horizons. Finds are of Pecica and of Otomani character, the latter throwing some light on the fate of the Pecica culture. Pots from the bottom layers of Várdomb were of Pecica type (the tenth and eleventh layers of Várdomb: Banner, 1956, pl. X, *7-11*). Sherds of incrusted pottery of south Pannonian type appeared in the succeeding horizons, and pottery from the layers above these, layers three to eight, was of Otomani type (Banner, 1956, pls. VIII, *7-12*; IX; X, *1-6*) similar to the pottery which was discovered in the habitation sites of Vărșand and Socodor in western Rumania (Popescu, 1956b). Pottery from the seventh and eight horizons showed mixed Pecica and Otomani elements (Banner, 1956, pls. IX, *9-14*; X, *1-4*). In the topmost layer, horizon two, a vase with a cylindrical neck and two small handles was found in association with late Otomani pots (Banner, 1956, pl. VIII, *1-6*). Typologically, it is a typical Tumulus vase of Phase B_1. From the above it is seen that Várdomb was inhabited by the Pecica people in its earliest habitation horizons, then influenced by the Incrusted Pottery culture and subsequently taken over by the Otomanians. In the Middle Bronze Age it was occupied by the central European Tumulus people.

Another source of information is in the cemeteries. They are grouped around Szeged on the lower Tisza. Some of them, like Szöreg and Deszk, include graves of several Early Bronze Age phases. The burial rite was inhumation, the dead lying in simple trench graves on their sides and in the contracted posture. An outstanding cemetery is Szöreg (Foltiny, 1941a), which on the basis of horizontal stratigraphy and typology of metal types can be divided into five chronological groups, Szöreg I-V which extend throughout the first half of the second millennium B.C. This classification is worked out by Dr. Bóna, Budapest.

In burial rites, pottery and ornaments continuity is seen throughout all the documented phases. In the following discussion I shall classify Pecica into two groups, early and late.

a. *Early Pecica, ca. 20th – 18th centuries B.C.*

The early Pecica inhumation graves contained a large number of copper, gold, faïence objects and Mediterranean shell ornaments. Metal forms show Asiatic roots, and Gordon Childe (1929) saw in this group so much of West Asiatic and Anatolian influence that he even mentioned his temptation to ascribe the foundation of the new villages to actual settlements of Asiatic traders and metallurgists among the native population. Not only did the West Asiatic types of necklets (fig. 4, *1*), Cypriote knot-headed pins (fig. 4, *3*), "Cypriote" daggers (fig. 4, *2*), double-spiral pendants (fig. 4, *6*), faïence beads (fig. 4, *5*), and shells (fig. 122) show southeastern affinities, but hour-glass jugs, some with two handles (fig. 121, *1*, *6*), and the system of pottery ornamentation have analogies in Troy. A link with the Helladic Minyan culture is indicated by some pot forms, like sauceboats (fig. 121, *5*) and footed vases with a handle known

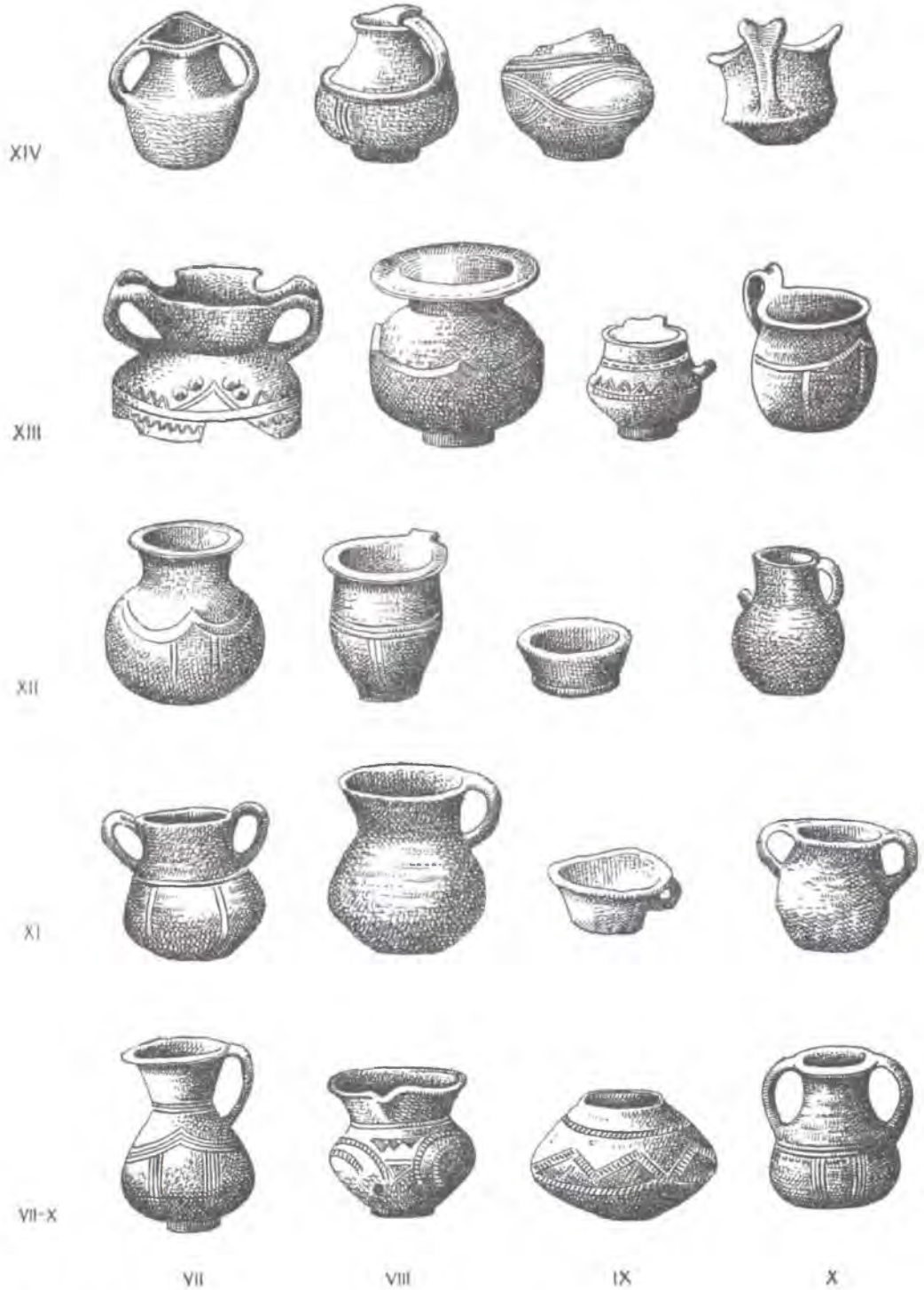


FIG. 120. Development of pottery during the classical and late Pecica phases as shown by the stratigraphy in the site of Pecica (Pecska), on the lower Mureş, western Rumania. Horizons VII to XIV. Horizons I to V yielded undecorated pots. Scale approx. 1/4. *Based* on Popescu, 1944.



FIG. 121. **1-6,** pottery types, and **7,** ornamental plates found in the pot **6** from the habitation site of Periam (Perjámos) on the lower Mureş, western Rumania. Scale approx. 1/4. *After* Nestor, 1933b **(1-5)** and Roska, 1942d **(6).**

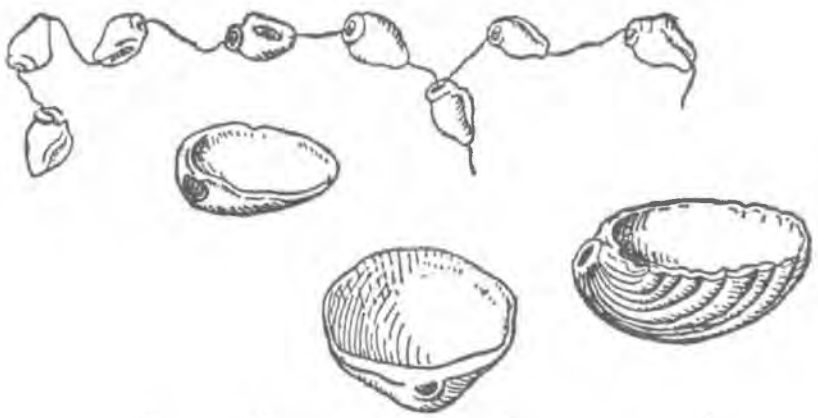


FIG. 122. Salt water shells from the cemetery of Ó Beba near Szeged, Hungary. Scale 1/1. *After* Popescu, 1944.

from the tell of Periam (Nestor, 1933b, p. 87, fig. 17, *1* and p. 88, fig. 18, *2*), which seem to be replicas of metal vessels. Small gold earrings or hair-rings with flattened overlapping ends (fig. 4, *4*) found in the graves of Pitvaros, ÓBeba and Szöreg I, and gold plates with punctured geometric patterns from ÓBeba (fig. 123) and Szöreg were of reddish-yellow color unusual for the Transylvania gold. Their origin probably lies in the distant southeast. In spite of all foreign contacts there are no data for the identification of colonies belonging to the Asiatic traders. The cemeteries and habitation sites persisted



FIG. 123. Gold plates with punctured geometric patterns from the cemetery of Ó Beba near Szeged, Hungary. Scale 1/2. *After* Popescu, 1944.

in the same place for a long time, and they show an astonishing similarity of style in ceramic and metallurgical technique. In all phases the graves contained great numbers of beads made of faïence, clay, salt water shells (*Cardium, Dentalium, Pectunculus*), and animal teeth, short triangular dagger blades with several holes for riveting, and diadems made either of round and convex copper plates, of several rows of copper tubes, or of rectangular plates with the ends rolled in (pl. 1, *14-16*). The earliest faïence beads were round and rather large, sometimes 1 cm in diameter, of greenish or white color (fig. 4, *5*). Those from the succeeding phase were of smaller variety and frequently of angular form. Thousands of such beads were found in the graves of the Szöreg and Deszk cemeteries (pl. 1, *1*). Sacred ivy-leaf pendants (pl. 1, *7*) appeared at the end of early Pecica.

A typical early Pecica habitation site is Periam in the district of Arad in western Rumania with an undisturbed cultural layer, 60 cm thick. The excavations were carried out by Roska in 1909-1913 and in 1921 (Nestor, 1933b, p. 84 ff.; Popescu, 1944, pp. 54 ff.). This habitation site was located on the terrace of the small Aranka River, a tributary of the lower Mureş, and was surrounded by a rampart and a ditch. Although burnt plaster, hearths, and irregular groups of postholes were found, it was not possible to trace the outlines of the houses. Deep bell-shaped refuse pits contained sherds, grains, loom-weights, implements, and bones of domestic and wild animals. Bone tools, harpoons, awls, needles, and daggers were found in great quantities. Pottery made up the major part of the finds. It consisted of fine, well-fired and polished vases and jugs, and kitchenware including storage vessels, bowls, cups, and ladles. Typical Periam vases were graceful hour glass jugs with large handles, the top of which run up to the mouth (fig. 121); the early ones are plain, but the later examples are decorated with horizontal and vertical raised ridges or engraved lines. The evolution of pottery throughout the Periam phase is best shown by the stratigraphy in Pecica already mentioned. The earliest Pecica horizons, I to V, yielded undecorated vases. The later layers, horizons VII to X, contained vases decorated with vertical and horizontal parallel lines or striated bands forming semicircles and zigzags (fig. 120, *VII-X*).

Early Pecica could have covered about the first three centuries of the second millennium B.C. Szöreg I and II, Deszk F I, the earliest horizons of Pecica I to V, and earliest horizons of Periam were parallel to the Nagyrév group or Tószeg A of northern Hungary described below. This can be seen in strong similarities in pottery. The earliest in the series judging from typology are the cemeteries of Pitvaros and ÓBeba. Pot forms were less elegant than later ones with high necks and handles, and for this early phase bulging vessels standing on four or six feet joined at the base were typical. Such types also appear in the earliest Nagyrév group as in the cemetery of Alsónémedi south of Budapest (fig. 127), the late Bell Beaker and the earliest Únětice cemeteries. The later phases of early Pecica, horizons VII to XII, were parallel to the early horizons in the stratified site of Tószeg B, Socodor and Vărşand in western Rumania (Popescu, 1956a; 1956b). Diadems, dagger blades, double-spiral pendants, knot-headed pins and other metal artifacts allow us to synchronize early Pecica, at least its later part, with the Kisapostag group of western Hungary (Mozsolics, 1942a).

Early Pecica influences were strong in the middle and upper Tisza and the middle Danube basins. They even reached central Europe and played a vigorous role in the formation of the Únětice metal and ceramic forms.

b. *Late Pecica, ca. 18th – 15th centuries* B.C.

This period is best known from the late horizons of the Pecica site and the cemeteries of Szöreg and Deszk. Typical vases are amphorae with a funnel-shaped neck and a broad belly; handles are raised high or parallel to the mouth. Vertical or semicircular channeled decoration is frequent, and zigzags, triangles, dots, round cavities, and small bosses appear on later types. Pots were made of well-fired

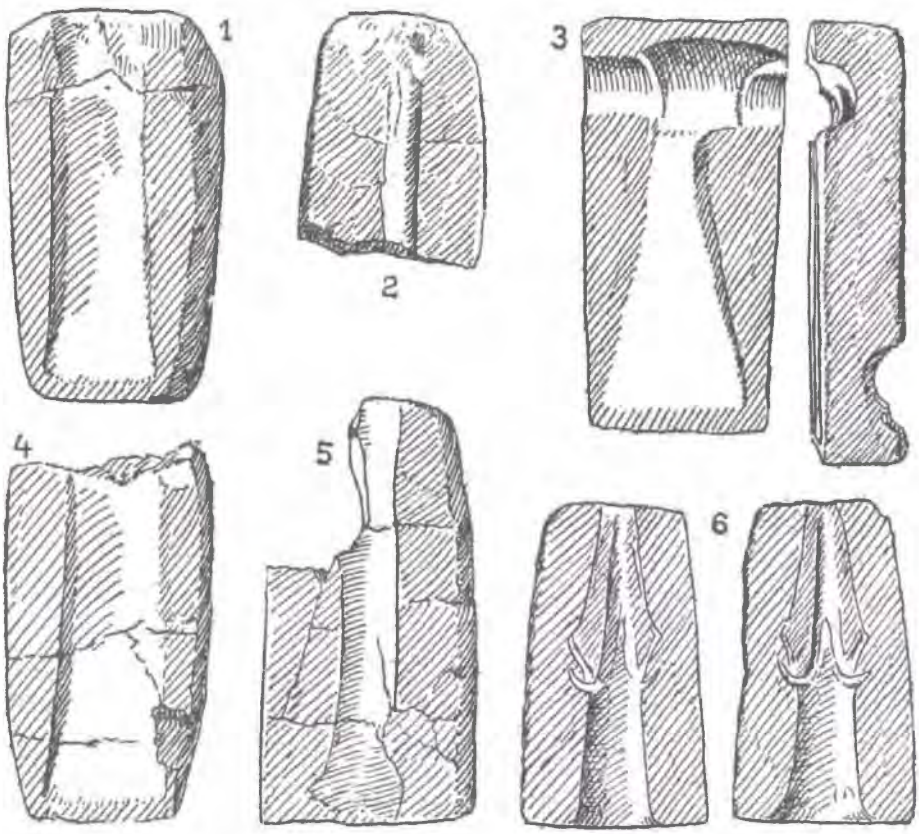


FIG. 124. Molds from late Pecica; **1-5**, from Horizon XIV; **6**, from Horizon XIII. Scale approx. 1/3. *After* Popescu, 1944.

clay with a polished surface. Amphorae, jugs, or other decorated vases were usually quite small, from 6 to 10 cm high. Form and ornament gradually changed as is shown by several developmental stages in the site of Pecica. Pottery from horizon XIII shows its most baroque character, and includes peculiar vases with a quatrefoil mouth, which Childe called "kantharoi" and compared with silver kantharoi from Crete of Middle Minoan II and III, with alabaster kantharoi from the sixth shaft-grave of Mycenae, and with those known from central Anatolia dating from 1800-1200 B.C. (Childe, 1956, pp. 293-9). Molds for axes of Hajdusámson type found in the layers XIII and XIV indicate contemporaneity with the classical Otomani culture. It is quite probable that the Minoan-Mycenaean quatrefoil kantharoi inspired those of western Transylvania. Pottery from horizons XIII and XIV represented something new, forms with oval or rhomboidal mouths and the *ansa lunata* handle (fig. 120, XIII and XIV).

Local metallurgy is indicated by stone molds. Almost all those discovered in the site of Pecica were made of slate. They were used for casting flat axes (fig. 124, *1*, *2*, *4*, *5*), shaft-hole axes of Transylvanian type (fig. 124, *3*), and spearheads having narrow triangular wings and hooks between the socket and wings (fig. 124, *6*). A considerable number of molds shows that remarkable progress was made in metallurgy. Metal tools were commonly used.

Figure 125 shows several types of vases from the cemetery of Szöreg. This pottery was found in association with knot-headed pins of late type having a longer spiral than the knot-headed pins of the early Pecica phase (fig. 125, *5*). There were also spiral rings and spiral beads. In grave 190 a vase (fig. 125, *6*) and a bowl (fig. 125, *8*) of late Pecica type were found together with a battle-axe of "Bohemian" type (fig. 125, *7*), frequent in the late Únětice (Věteřov) and classical Otomani.



FIG. 125. Finds of late Pecica type from the cemetery of Szöreg near Szeged. **1-3, 6,** vases; **4,** cup; **8,** bowl; **5,** knot-headed (Cypriote) pin of late type; **7,** axe with a vertical socket. **3-5** and **6-8** are single grave inventories. Scale: pots approx. 1/5; **5** approx. 1/2, **7** approx. 1/3. *After* Foltiny, 1941a.

2. *The Nagyrév and Hatvan cultures in eastern Hungary and Slovakia*

a. *Stratigraphy*

Before discussion of the separate chronological and cultural groups, several important stratified sites in eastern Hungary and Slovakia should be mentioned. They show the succession of the Early Bronze Age on the one hand and the mixture or coexistence of several groups on the other.

The backbone of Bronze Age stratigraphy in northern Hungary is the tell at Tószeg, in Hungarian Tószeg Laposhalom or the flat mound of Tószeg, located several kilometers from Szolnok on the flood plain of the Tisza River about four kilometers from the present stream. In past years the flood waters of the Tisza have destroyed a part of the tell and revealed its profile in which occupation layers can be seen well. These layers together measured from 5 to 7 m thick and contained as many as 22 horizons labeled *a* to *y* in the excavations of 1948 (fig. 126).

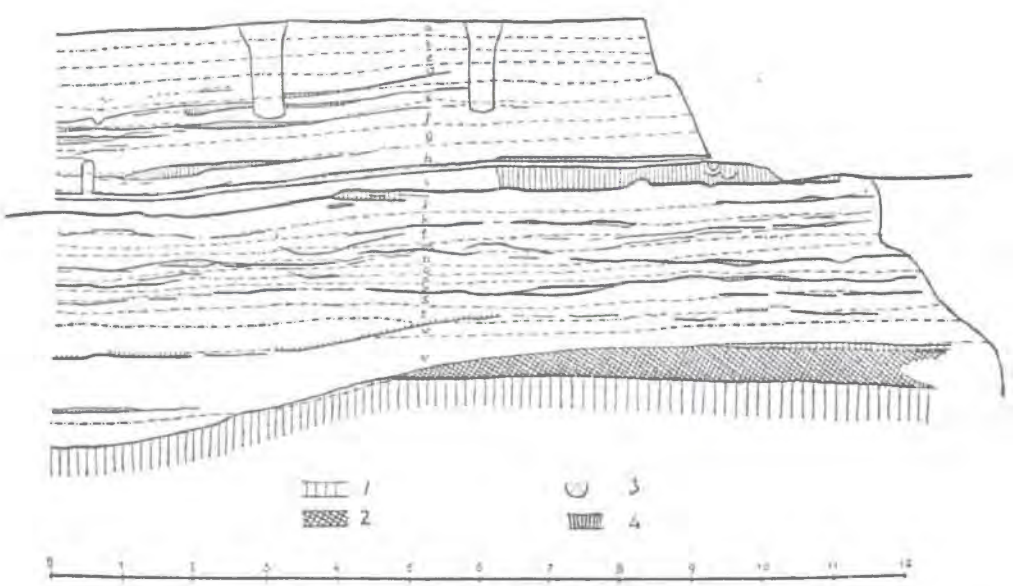


FIG. 126. Section of the tell at Tószeg during the excavations of 1948 by Mozsolics, Korek and Csalog. **1,** clay layer; **2,** pre-Bronze Age layer; **3,** ashes; **4,** clay, remains of houses. *After* Csalog, 1952.

Tószeg Laposhalom was known as a stratified habitation site as early as 1876. A series of excavations was made there starting in that year by F. Romer and E. Csetneki-Jelenik, and continued through 1902, 1906-07, 1911-12, 1923, and 1927-28 chiefly by L. von Márton. The last systematic excavations were done by J. Csalog, A. Mozsolics, and J. Korek in 1948. Many authors have mentioned the finds from Tószeg during the last decades of the nineteenth century. The results of the excavations of 1948 were published by Csalog (1952) and Mozsolics (1952) while the results of excavations done by L. von Márton in the period between 1902 and 1928 were evaluated and summed up by J. Banner and I. Bóna in 1957 (Banner, Bóna, and Márton, 1957).

Márton (1907) saw in Tószeg two cultures, Nagyrév and Füzesabony (Otomani). In his later scheme he divided them into four: two Nagyrév layers and two Füzesabony layers. Márton's classification was followed with some revisions until the new excavations in 1948. Moszolics (1952, p. 65), in her evaluation of the excavations of 1948, came to the conclusion that the habitation horizons can be classified into three major groups:

C. Füzesabony (horizons *f-a*),
B. Hatvan (horizons *o-g*), and
A. Nagyrév (horizons *y-p*)

Márton died prematurely and did not publish his excavation reports but a new evaluation by Bóna (Banner, Bóna, and Márton, 1957) has given the following tentative scheme:

D. Late Füzesabony (Otomani)	Includes elements of the Tumulus culture.
C. Füzesabony (Otomani) culture	Related to Vatya II and the Incrusted Pottery culture.
B. Hatvan culture (late phase)	Related to Vatya I in the middle Danube area.
A_2. Nagyrév (late phase)	Related to early Pecica and early Hatvan cultures.
A_1. Nagyrév (early phase)	Related to Vučedol-Zók group of the Incrusted Pottery culture and to earliest Hatvan.

Below the Bronze Age layers there were a Chalcolithic Tisza-Polgár and Neolithic Tisza layers.

Tószeg does not show a development of a single isolated culture but indicates a rapid change and mixtures of cultural groups. Nagyrév ran parallel to Hatvan, another vigorous group to the north and east, until it was replaced by Hatvan; the latter was superseded by Otomani (Füzesabony).

Another group of stratified sites was uncovered in Slovakia. Southwestern Slovakia, on fertile valley of the middle Danube and its tributaries Váh, Nitra, Hron, and Ipel' was a meeting point for several cultures. The Corded and early Únětice superseded the Nagyrév culture. Later the Otomani people from the east approached and occupied the territory as far as the valley of the Hron River in the west. From south of the Danube the Incrusted Pottery culture, Vučedol, Kisapostag and later the North Pannonian Incrusted Pottery groups, continually transgressed the Danube, and then elements mixed with those of Únětice and Otomani. The synchronous appearance of various cultural elements has special value for chronological studies. In view of this fact and of its good stratigraphy, the fortified site at the village of Male Kosihy on the Ipel' River near its confluence with the Danube, excavated in 1956, is one of the outstanding monuments (Točík, 1958b). In the excavated section, where cultural deposits reached 3 meters in thickness, the following cultural layers were identified: I, Final Neolithic, Lengyel and Baden (Channeled Pottery); II, Nagyrév; III, Hatvan with two habitation horizons; IV, Mad'arovce (late Únětice) with two habitation horizons. In the Nagyrév layer appeared late Vučedol and early Únětice elements. In the Hatvan layer were found pottery of Kisapostag type and fragments of classical Únětice mugs. In the Mad'arovce layer stylistic elements of the Otomani (Füzesabony), North Pannonian (Veszprém), and Vatya were present.

The summary of the results from the above-mentioned stratified sites in comparison with the Incrusted Pottery and the Únětice-Tumulus cultures is given in table I.

TABLE I

Dates	*Tószeg tell in eastern Hungary*	*Incrusted Pottery culture in western Hungary*	*Male Kosihy site in southwestern Slovakia*	*Northern Hungary*	*Únětice-Tumulus culture in central Europe*
	D Late Otomani with elements of the Tumulus culture	Tumulus expansion		Tumulus expansion	Tumulus culture
ca. 1450 B.C.					
	C Horizons a-f (1948 excavations): Classical Otomani (Füzesabony).	North Pannonian, Veszprém type	Layer IV: Mad'arovce facies of late Únětice with Füzesabony, Vatya and Veszprém elements	Classical Otomani (Füzesabony)	Late Únětice (Mad'arovce in western Slovakia, Věteřov in Moravia)
ca. 1550 B.C.					
	B Horizons g-o: Otomani II and late Hatvan	Classical Incrusted Kisapostag	Layer IIIb: late Hatvan with Únětice, Kisapostag and Incrusted Pottery elements	Late Hatvan	Classical Únětice
ca. 1650 B.C.					
	A_2 Horizons p-y: late Nagyrév with influences from early Hatvan and Otomani I	Early Incrusted; early Kisapostag	Layer III a: early Hatvan	Early Hatvan	Early Únětice
ca. 1800 B.C.					
	A_1 Early Nagyrév with elements of Zók and earliest Hatvan	Vučedol phase of the Incrusted Pottery	Layer II: Nagyrév	Zók (or Nyirség group) with Kurgan elements	Corded and Bell Beaker
ca. 2000 B.C.					

b. *The Nagyrév group*

Nagyrév is an Early Bronze Age group which does not show a long continuum nor a wide distribution. As the tell at Tószeg has indicated, Nagyrév existed contemporaneously with Hatvan and was replaced by the latter.

The name is derived from the habitation site at Nagyrév near Szolnok, 2 km from the present Tisza River and was excavated by Tompa in 1926 and 1928 (Tompa, 1937, p. 66; Patay, 1938, pp. 30-39). Sites with finds of Nagyrév type are quite numerous in Hungary and eastern Slovakia in the basins of the Tisza, middle Danube, and Bodrog rivers and along the lower Ipel', Hron, and Nitra in western Slovakia. In the west they show many common elements with the Slavonian Vučedol, Bell Beaker, and Corded cultures. In western Slovakia the same culture is called the Čaka type after the Nagyrév site at Čaka (Točík, 1958a).

Similarities with the neighboring groups in Slovakia show that early Nagyrév was contemporary with the Corded Pottery culture and the Bell Beakers, and that the late Nagyrév was synchronous with the early Únětice. In Slovakia the Nagyrév people seem to have been intrusive, and they did not survive long because of the expansion of the early Únětice people. In the basins of the Ipel' and Hron rivers, the Nagyrév succeeded the Channeled Ware or Baden stratum; in the basin of the Nitra River Nagyrév superseded the Funnel-Beaker Boleraz group (Točík, 1958a).

In the west the Nagyrév group reached the middle Danube. A habitation site and a cemetery of



FIG. 127. Early Nagyrev pots from the cemetery of Alsonemedi, northern Hungary. Scale approx. 1/3. *After* Kalicz, 1957 and Moucha, 1959.

about 100 graves were uncovered in Dunapentele, south of Budapest (excavations in 1958-1959; information from Dr. Bóna), and also a large cemetery from Kulcs north of Dunapentele with 108 urn-graves (Bóna, 1960a). In the south the Nagyrévian urn-graves are reported from the district of Szeged where they mingled with early Pecica inhumation graves; such a case was observed in the cemetery of Szöreg (pl. 25). In the cemetery of Kulcs 11 groups of graves were brought to light. In each group the graves were placed in diagonal lines. This peculiar arrangement of graves may have been in connection with graves of one family.

In addition to the stratigraphy of Tószeg several successive phases of the Nagyrév culture can be seen in the cemeteries. The early phase is represented by the cemetery of Alsónémedi, 30 km south of Budapest excavated in 1956 by Kalicz (Kalicz, 1957). Cremation was universal. Small vases were either pear-shaped jugs (fig. 127, *1*, *4*, *6*, *10*), cups (fig. 127, *2*, *3*) or pots with two or four handles (fig. 127, *7*, *8*), and footed vases (fig. 127, *5*, *9*). As was already mentioned, the footed vases have close parallels in the cemetery of ÓBeba, one of the earliest Pecica cemeteries. The major part of the Nagyrév finds corresponds to Tószeg A (fig. 128). The late Nagyrév group is represented in the cemetery at Kulcs, by simplified forms of pots, usually beakers or jugs with rounded sides.

A pear-shaped jug was one of the frequent forms in the repertory of Nagyrév (fig. 127, *1*, *4*, *6*;



FIG. 128. Pottery types of Nagyrev period. Toszeg mound, layer A.
Scale **1-3** approx. 2/5; **4** approx. 1/4. *After* Patay, 1939.

fig. 128, *1*). In addition to simple jugs, footed jugs (fig. 128, *2*) were often found. There were as well footed amphorae with two small handles or lugs (fig. 128, *4*, *8*) decorated with raised ridge ornaments, horizontal around the shoulders and vertical on the belly (fig. 128, *8*). Sometimes there was also incised and incrusted ornament (fig. 128, *5*). Bowls and large storage vessels with handles or without usually had a broom-brushed surface and a ridge around the shoulders with finger-tip impressions. Some pots had conical or disc-shaped covers (fig. 128, *7*). Among the pottery there were ladles (fig. 128, *6*) and also footed clay stands which were probably used for baking. Pots were well fired and polished and were of a red or yellowish color. Among stone tools were perforated axes and saddle-shaped quern stones. There were also wrist-guards or plates with perforations in the corners reminiscent of the Bell Beaker plates. Small flint blades were still in use. Whorls were globular, biconical, or flat. Awls, needles, spades, axes, daggers, and harpoons were made of bone or horn. Cylindrical clay beads and *Dentalium* and *Cardium* shells were used for ornaments. Among copper ornaments were diadems made of plates with ends rolled in tubes, hair-rings, and racquet-shaped pins (Kulcs cemetery: Bóna, 1960a).

What is Nagyrév? Was it a persisting Lengyel group whose material culture was strongly influenced from the south by the Pecica culture, from the west by the Bell Beaker and the Incrusted Pottery cultures, from the north by the central European Corded Pottery, and from the east by the Hatvan culture? Perhaps the final answer will come after many more cemeteries are found. The Nagyrévians lived on the central

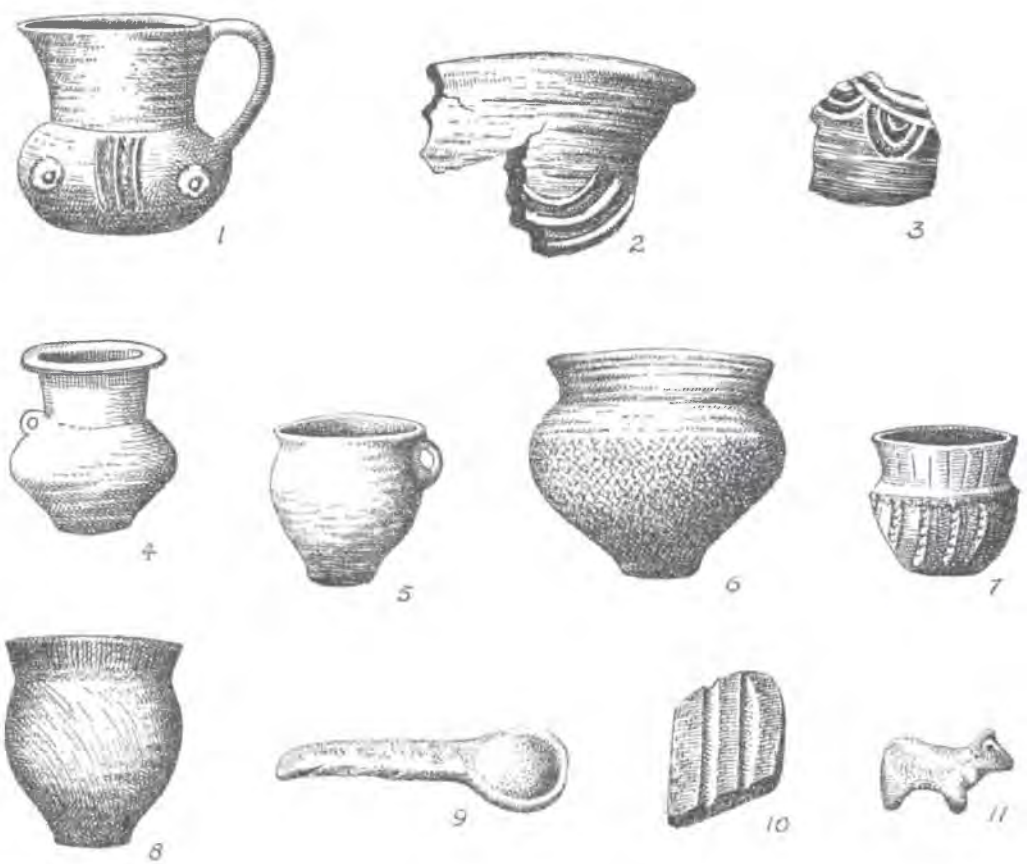


FIG. 129. Finds from the habitation site of Hatvan at Strázsahegy, eastern Hungary. **1-3,** pottery from the upper horizon of the site (Otomani type); **4-8,** pots of late Hatvan type; **9,** clay ladle; **10,** stone mold; **11,** animal figurine of clay. Scale approx. 1/4-1/5.

European highway of trade where all novelties from all directions meet. That they were immigrants from the south as Dr. Bóna thinks (oral information, 1960), is perhaps too early to say. One thing is clear — Nagyrév is not a part of the Kurgan culture. The end of the Nagyrév culture was brought on by the Hatvanians, its immediate eastern neighbors.

c. *The Hatvan group*

Finds labeled "Hatvan" are stored in many provincial museums in Hungary, southern Slovakia, and northeastern Rumania, but its analysis and description has hardly begun. In northeastern Hungary alone, about 100 localities have yielded Hatvan finds (Banner, Bóna, and Márton, 1957, p. 130). The survey of Hatvan sites is given by Kalicz in his forthcoming monograph on Early Bronze Age of northeastern Hungary.

Hatvan was parallel to Tószeg A_2 and early Tószeg B, for among the Nagyrév finds in Tószeg A_2 were sherds with decoration or early Hatvan character. Early Hatvan pottery, such as that known from the habitation site of Tiszafüred, is distinct in cups with small handles and beakers (pl. 26). Barbotine (pl. 26, *3*), fluted (pl. 26, *2*), and zigzag ornament (pl. 26, *5*) were frequent, and the surface of many pots was "broom-brushed", incised with a sharp instrument or with shells (pl. 26, *1*). Late Hatvan pottery is typified by large vases with textile impressions over all the lower part of pots (pl. 27, *2*, *4*, *5*), ornamented

with rows or groups of small bosses (pl. 27, *1*, *4*, *5*), plastic ridges or horn motifs (pl. 27, *2*, *3*). Among the copper artifacts were massive shafthole axes and dagger blades with a tang.

Cremation was universal, but so far only late Hatvan graves are known. Usually burials were in urns but in some cases in pits without urns. In burial rites Hatvan corresponds to Nagyrév and contrasts with the Otomanians.

Villages were arranged near water and were fortified by ditches. The large habitation site of Hatvan, which gave the name to this phase, lies at Strázsahegy in the district of Heves in northern Hungary (Tompa, 1935). The cultural layer contained numerous remains of houses, large vases (fig. 129, *6*), beakers (fig. 129, *4*, *7*, *8*), cups (fig. 129, *5*), bowls and other pots with broom-brushed or textile-marked surfaces (like fig. 129, *6*, *8*), clay ladles (fig. 129, *9*), whorls, molds (fig. 129, *10*), animal figurines of clay (fig. 129, *11*), bone needles and awls, antler hoes, and stone tools. There were three strata of habitation well seen from the contours of houses (fig. 130). Long houses recall the large family houses of the Danubian Neolithic. A tell with two or three strata of large houses was excavated in 1960 at Tiszaluc Dankadomb near Miskolc in northern Hungary. The tell was round having an inner and outer ring of houses separated by a ditch. The earliest finds were of early Hatvan type associated with incrusted sherds of Zók type. Later finds at the site were similar to those of the village at Hatvan (information from Dr. Bóna, 1960, and Dr. Kalicz, 1962). Another round tell with several rows of houses in a circular plan and fortified by ditches was discovered at Emöd, district of Miskolc (information by Kalicz, 1962) and there are many more known tells of the same character. The type of village and cremation suggest a persisting Zók culture, particularly of the Nyirség facies in northeastern Hungary, strongly influenced by the Kurgan culture. In the Hatvan habitation sites a number of battle-axes of Kurgan type were brought to light. Tumuli and corded sherds of eastern type are reported from the Zók phase. This indicates that two groups of people lived here in the beginning of the second millennium B.C.

Hatvan ends with the appearance of the Otomanians in eastern and northern Hungary and in Slovakia. Archaeologically this is traceable in the change of village type, burial rites, and pottery. Instead of a large family house, a small house was used. Instead of cremation, they used inhumation. A much finer pottery with boss decoration came into use (cf. pots of Otomani type from the upper horizon of the Hatvan site, fig. 129, *1-3*). These changes are also seen in the later horizons of Tószeg B; they show that the Otomani expansion westward and northward occurred earlier than the beginning of Tószeg C.

B. CULTURAL GROUPS OF KURGAN ORIGIN

1. *The Otomani culture*

Under the name Otomani the whole culture of Transylvania, which succeeds the Coţofeni period, will be covered. Thus Wietenberg of eastern Transylvania, distinct in richly decorated pottery, spirals and meanders and usually treated as a separate culture, will be lumped togther with Otomani, a far better-documented western Transylvanian group. Both groups stand so close together that I do not see good reasons for the division of the Otomani and the Wietenberg into two separate cultures. They are rather two variants of one culture. Metal forms are of the same character. The elements of the decoration of Wietenberg pottery with meanders and spirals are also present in the Otomani group in western Transylvania.

The name Otomani comes from the site of the same name near Margita, 60 km northeast of Oradea in Transylvania excavated by Roska in 1924, 1925 and 1928 (Roska, 1930) and in 1958-59 by Horedt, Rusu and Ordentlich (Horedt, Rusu and Ordentlich, 1962). This name for the designation of the cultural group has been introduced by Nestor (Nestor, 1933b). In Hungary the name Füzesabony is used for the classical Otomani dating from the sixteenth-fifteenth centuries B.C. and is derived from the tell in the district of Heves excavated in 1931 by Tompa (Tompa, 1937, pp. 90 ff.). As Hungary is not

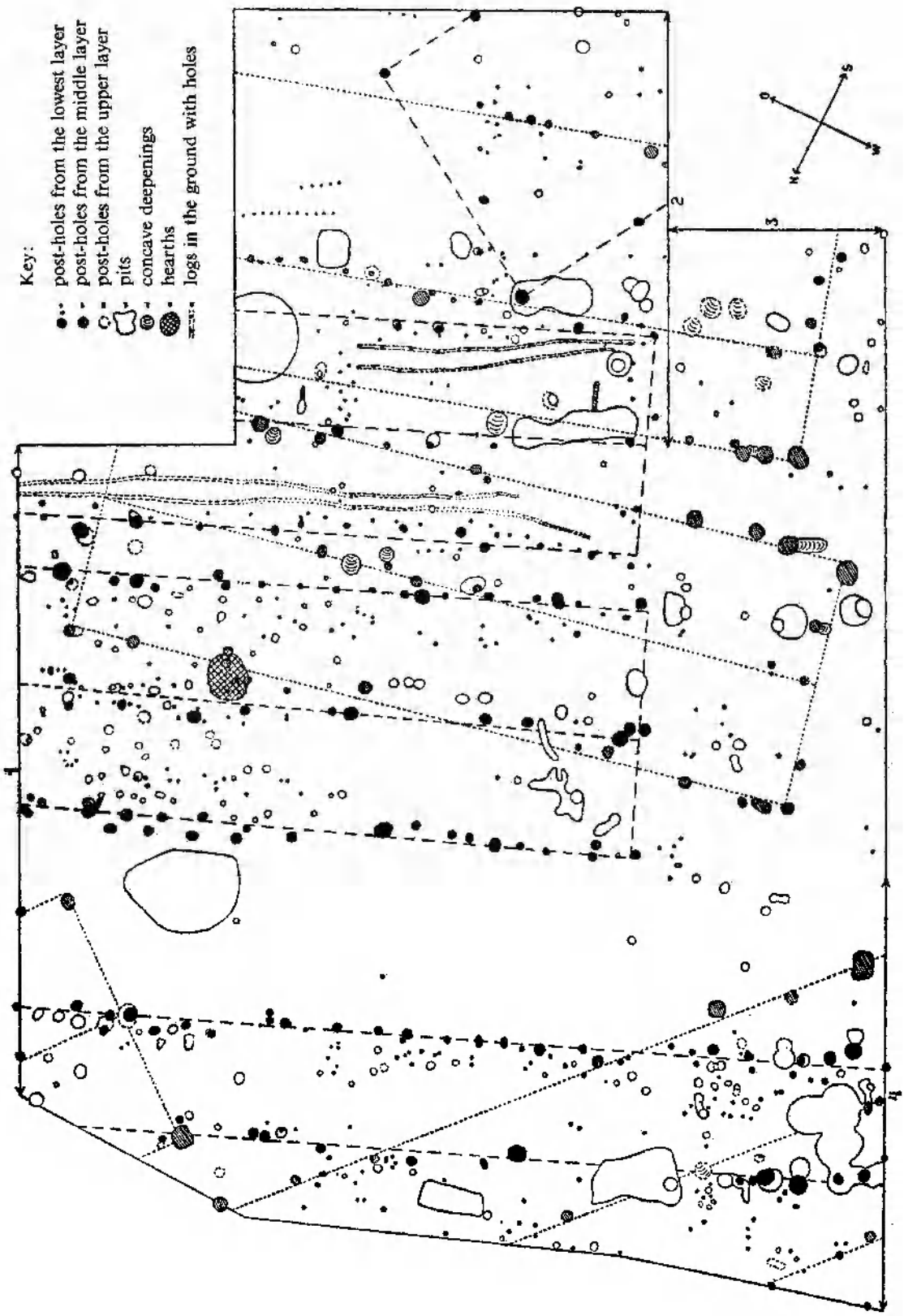


FIG. 130. The excavated area of the habitation site of Hatvan near Strázsahegy, eastern Hungary, with three layers of house remains. 1:300. *After* Tompa, 1935.

the homeland of the Otomanians, the Transylvanian Otomani is a better choice. This culture was formed in Transylvania and a fairly long development is testified to by the stratified sites.

The Otomanians lived on elevations, high riverbanks, promontories or islands, usually at the confluence of two rivers. Such places had natural protection by water or swamps from several sides, but traces of fortifications by ditches were found in almost all sites. A fortified village, round, oval or triangular in plan, seems to have been a general type of habitation throughout many hundreds of years. Reproduced here is the plan and section of the fortified village at Vărşand in western Rumania near the Hungarian border (fig. 131). The middle part of the village was surrounded by a large ditch and then by an earthen ring which was also inhabited. In this case the smaller part of the village was fortified by a belt of houses.

The Otomani site itself consisted of two chronologically successive villages: one was arranged on a high terrace fortified by a ditch on its southern side extending for 25 m. The fortress, called "Cetăţuia"

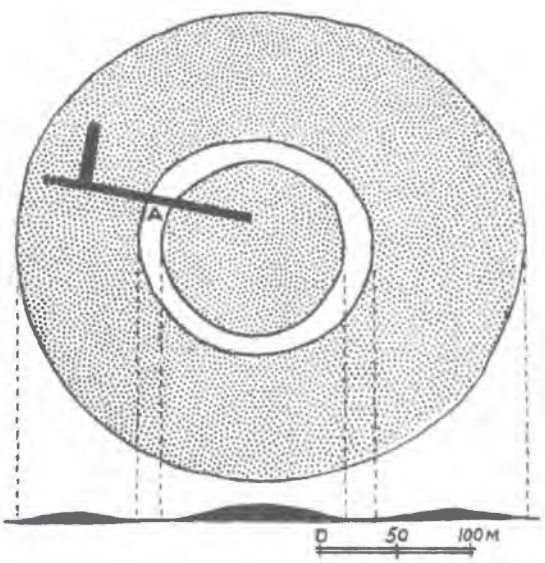


FIG. 131. Plan and cross-section of the tell at Vărşand (Gyulavarsánd), western Rumania. *A*, trench of excavations. *After* Popescu, 1956a.

in Rumanian yielded the earliest Otomani finds (Otomani I). In the next period the fortress was abondoned. Another village arose on a nearby island of the now dry Erul River. The island village yielded many habitation horizons classified into two main layers, Otomani II and III. The cultural layer with finds of Otomani II character was 1.75 m thick with clearly discernible eight habitation horizons.

Some Otomani villages had a carefully prepared plan of streets and fortifications. One of the eloquent witnesses to this is the village at Barca near Košice in eastern Slovakia (Hájek, 1957, 1958; Kabát, 1955a, 1955b) The site is located on a promontory between the Hornad River and a small river called the Myslavka. The fortifications were arranged on the unprotected sides. The site revealed four distinct strata, numbered from top to bottom. The lowest, Layer IV, belonged to the Neolithic and Chalcolithic periods and was divided into three horizons: *3*, Bükk culture; *2*, Tisza-Polgár; *1*, Baden and Corded Pottery culture. The next, Layer III, contained no finds. Layer II yielded finds of Otomani type, and the uppermost stratum, Layer I, was divisible into three horizons, *3* to *1*, and yielded late Otomani finds of the period of the Tumulus expansion. In the top of Layer I refuse pits were discovered filled up with so-called Piliny ware (fig. 132, *1*).

Remains of the village of the Otomani culture came to light in Layer II. The reconstruction of the plan is illustrated in figure 132, *2*. Four rows of fairly well preserved rectangular houses each measuring

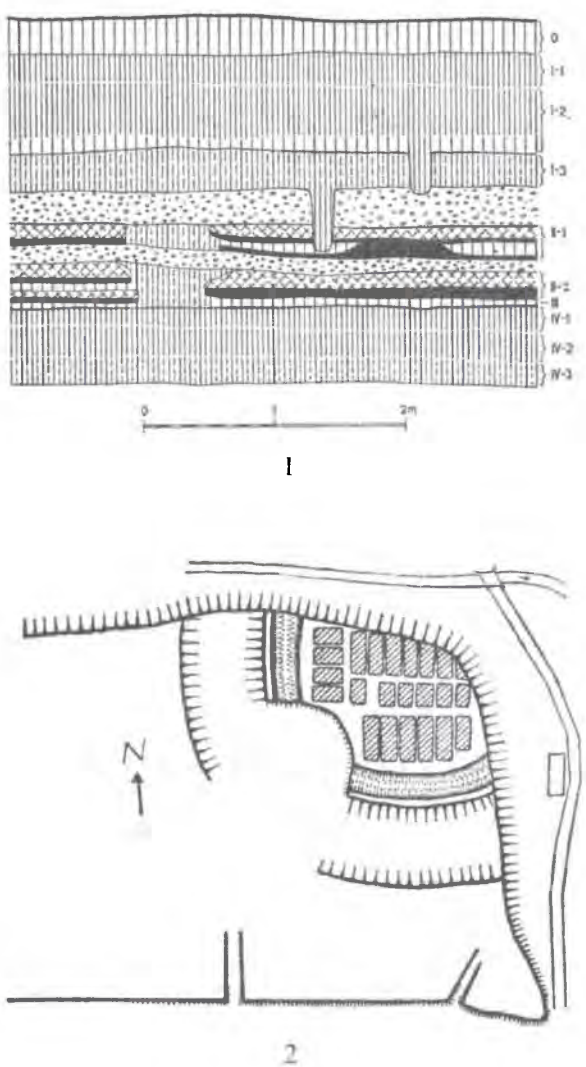


FIG. 132. **1,** stratigraphy in the site at Barca near Kosice. Layer IV: 1, Baden and Corded Pottery culture; 2, Tisza-Polgár; 3, Bükk; III: no cultural remains; II: several horizons of the Otomani culture; I: Late Otomani with central European "Tumulus" elements. **2,** schematic plan of the excavated Otomani village in Barca. Middle horizon of layer II. *After* Hájek, 1957 **(1)** and Kabát, 1955 **(2)**.

about 10 m in length and divided into several rooms (pl. 28) were built of wattle and daub with clay and wooden floors. The village was formed by four rows of these houses and had suffered from fire three times. It was surrounded on the southern and western sides by a ditch and a rampart (Kabát, 1955a, 1955b).

In addition to Barca, much information about the construction and type of houses comes from the various Tószeg horizons, some from late Tószeg B and particularly from Tószeg C.

A considerable number of houses have shown a form approximating the megaron type composed of a larger room with a hearth and a smaller room or open porch (fig. 133, *A*). The construction of the house started with the preparation of the earthen platform, and stamped floors were placed above. Walls usually were built of wattle and daub. The wattle was carefully woven of thin branches, made separately or in combination with vertical posts, and was then daubed from both sides with clay tempered with straw. Some walls were made of reeds, particularly those which were on the inside of the house,

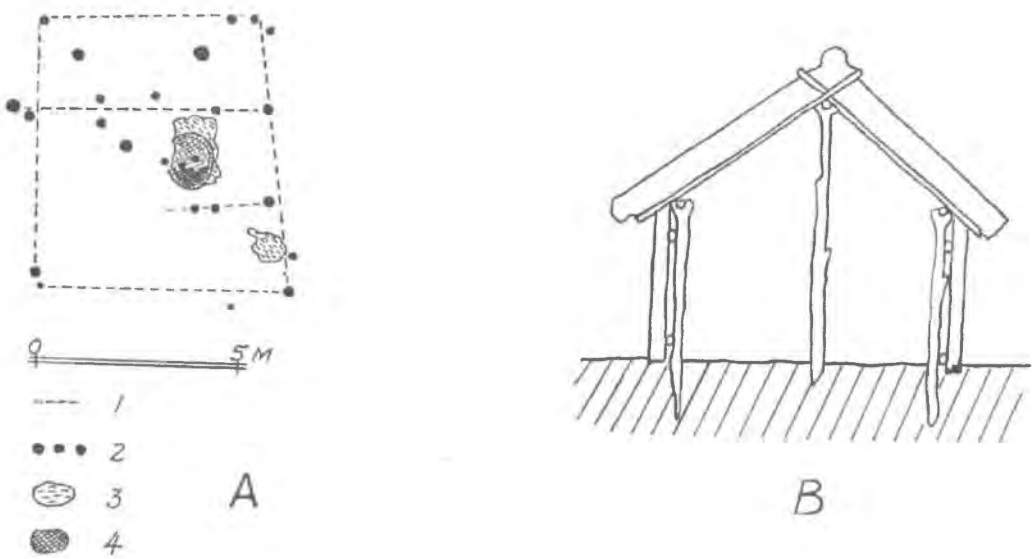


FIG. 133. *A:* house plan from the tell at Toszeg (horizon 13 from Márton's excavations): **1,** outline of house; **2,** postholes; **3,** clay; **4,** walled hearth. *B:* section of house (reconstruction) from horizon h (excavations of 1948) from Tószeg B level *After* Banner, Bóna and Márton, 1957 (*A*), and Csalog, 1952 (*B*).

dividing the rooms. The pitched roof rested on a series of posts (fig. 133, *B*). In some houses the thresholds were preserved. Numerous structures, as the excavations in Tószeg showed, were for animals and crops and stood near the living quarters. They were all of lighter construction and did not have clay walls, nor did clay floors and hearths appear in them. Timber dwellings built of horizontal logs are also known, as for instance in the fortress of Várdomb near Békés in eastern Hungary (fig. 134), where 14 log cabins could be reconstructed with more or less probability. The remains of these timber structures show technical skill in woodworking. Wooden beams were found, and in one instance a dovetail joint was preserved intact by which the beam was fitted to the next piece. The excavator, Banner, is of the opinion that such log cabins must have been the dwellings for the chief of the tribe, his family and entourage in emergencies. They differed considerably from the solid houses of the ordinary settlements.

From classical Otomani come peculiar little ovens, clay stands with a pot combined in the inside (pl. 29, *1*). In Tószeg C there also appeared walled hearths. These walled hearths were decorated with ornament of raised ridges forming rhombs, triangles, crosses, etc. (fig. 135). The sizes of the hearths varied from 70 cm to 1.60 m. In connection with hearths, clay stands or grates with irregular round holes for placing pots were frequently found, some of which were used like portable hearths. In the hearths appeared clay trays, some of them geometrically decorated (Banner, Bóna, and Márton, 1957, pp. 68 ff.).

In Barca there were found human idols of clay usually with pit-decoration portraying bead necklaces (fig. 136, *1*), and numerous loom-weights of pyramidal shape indicating the importance of their weaving industry. Clay tubes from Vărșand, Tószeg and other tells could have been musical instruments.

The Otomanians were farmers as is shown by many plough-like antler implements and hoes and even by grains of wheat and millet. The bones of domestic cattle, sheep, swine, and horses have been found, and figurines of animals also include representations of horses (fig. 136, *2, 3*). They also fished and hunted as is shown by net sinkers, arrowheads of bone and flint as well as by bones of wild animals. Metallurgy is attested by molds and crucibles.

They had four-wheeled wagons, as clay models and separate wheels indicate. Bóna has recently brought together all existing material on vehicles and wheels in eastern central Europe (Bóna, 1960c).

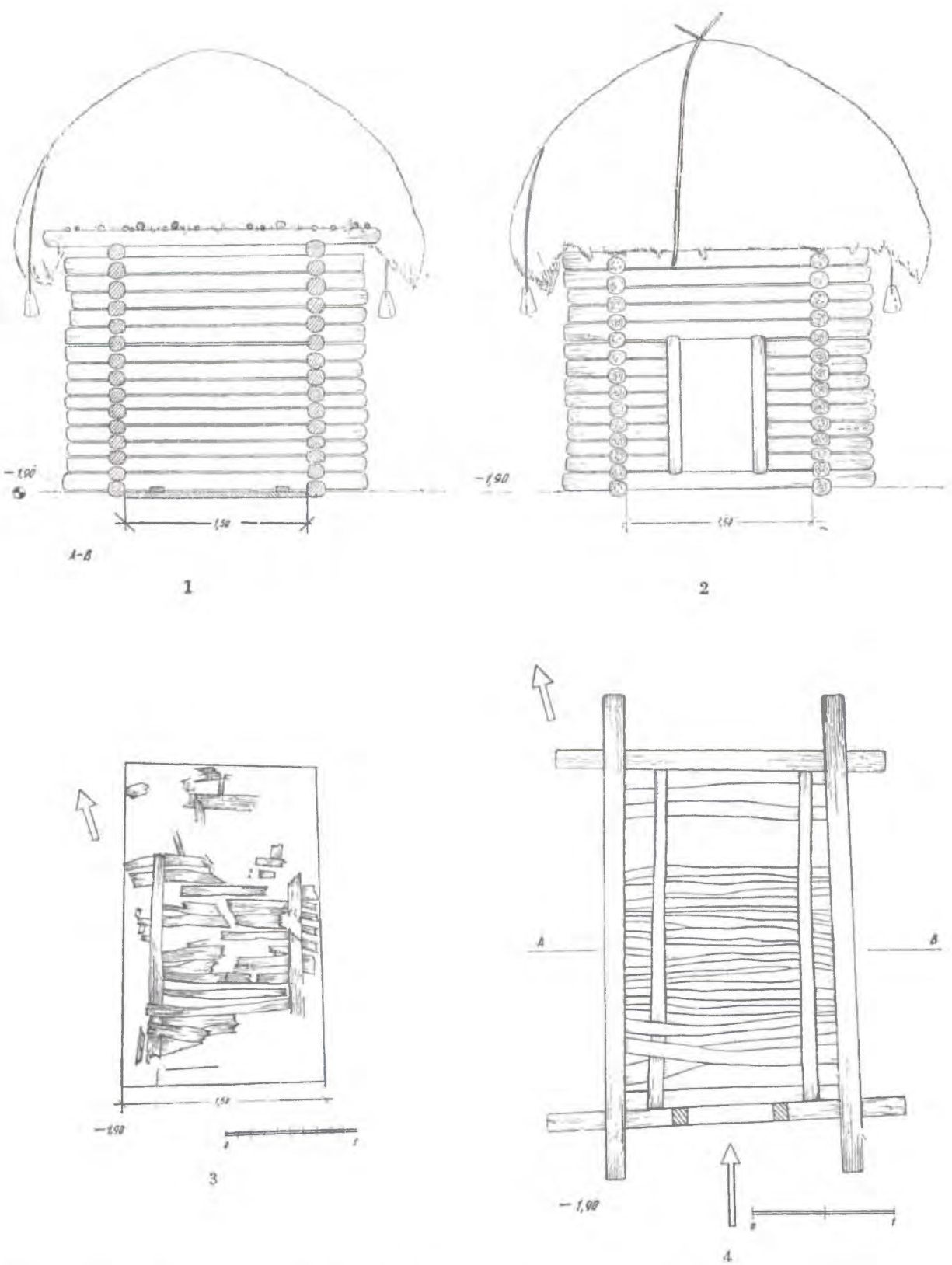


FIG. 134. Reconstruction of a log cabin from the Várdomb fortress near Bekes. **1**, vertical cross-section; **2**, front; **3**, remains of flooring; **4**, reconstruction of the plan. *After* Banner, 1955.

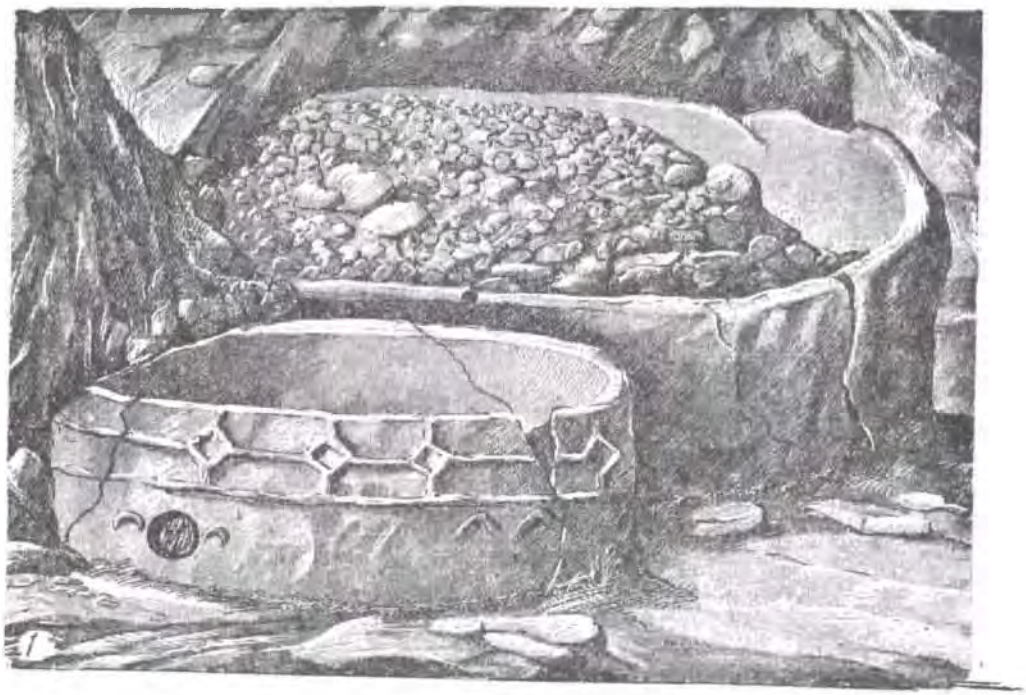


FIG. 135. Walled and ornamented hearth from one of the houses of Tószeg C. Classical Otomani. *After* Banner, Bona and Márton, 1957.

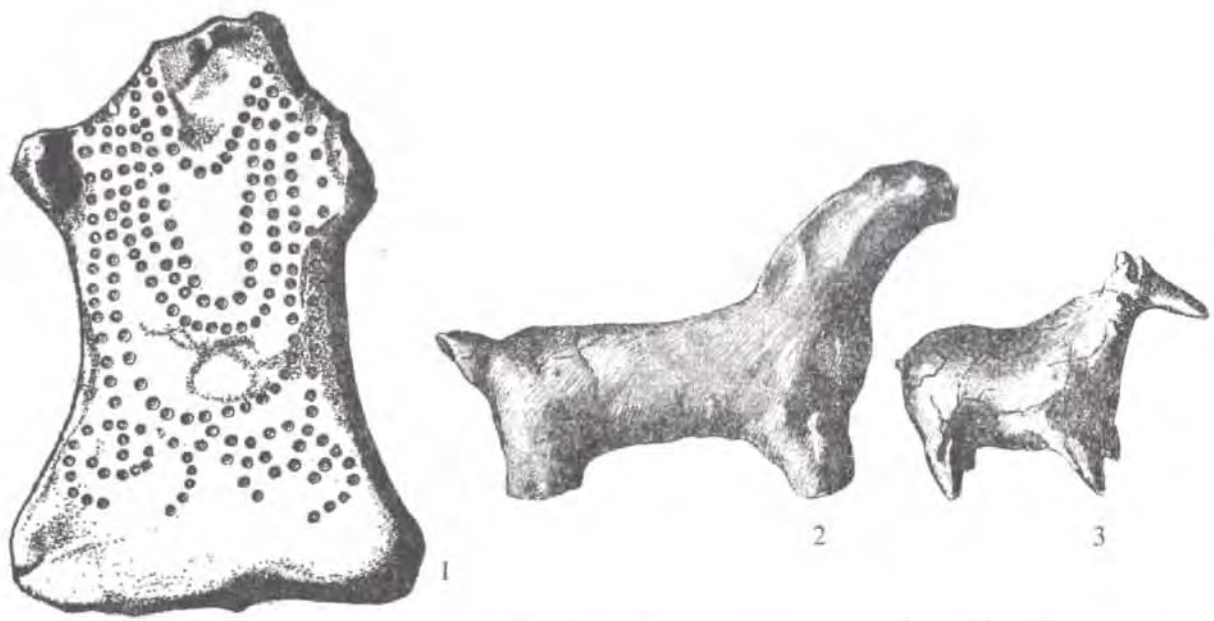


FIG. 136. **1,** Human figurine of clay decorated with pits. The upper row may portray an amber necklace. Barca, layer I, 3. *After* Hájek, 1957. **2, 3,** Horse figurines of clay from Tószeg C. *After* Banner, Bona, and Márton, 1957.

Fifty-two sites are included in the list of localities where either miniature models of vehicles or solid or spoked wheels were found. These are particularly concentrated in the distribution area of the Otomani culture in Transylvania and northeastern Hungary. Another large group of sites with wheels is north of the middle Danube in the Veterov and Mad'arovce groups of the late Únětice culture (Bóna, 1960c, fig. 7). The number of wheels and models is big enough to show that vehicles played an important role.

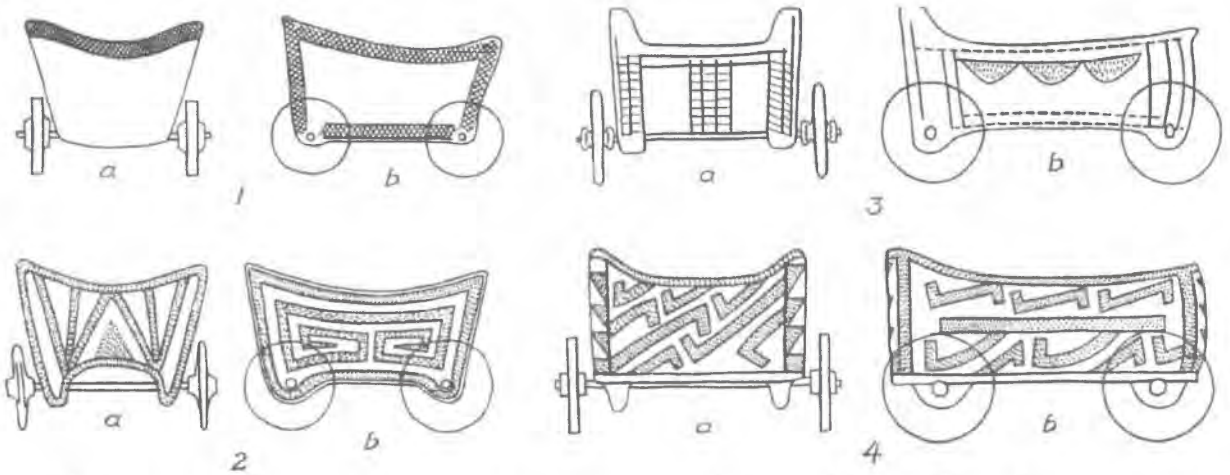


FIG. 137. Clay models of wagons (reconstructed) from Transylvania. **1**, Szamosujvár on the Petris, from a settlement of the Wietenberg group, 9-10 cm. long, 4-4.5 cm. high; **2**, Wietenberg site, 10 cm. wide, 7 cm. high; **3**, Vărşand (Gyulavarsánd), 11 cm. long at the top, 7.9 cm. wide in front and 8.6 cm. in the rear, 4.3 cm. high in the middle and rear; **4**, Novaj, county of Borsod; original length 16-18 cm., width about 13 cm. *After* Bóna, 1960.

Miniature models may have been made as symbols of the real ones. Good examples of models come from the settlements of Szamosújvár on the Petris and from Wietenberg (fig. 137, *1*, *2*), from the tell of Vărşand in western Transylvania, and from Novaj, Borsod county, in northeastern Hungary (fig. 137, *3*, *4*). Almost all of the known wagons were geometrically ornamented. The earlier type with high sides like those from Szamosújvár and Wietenberg (fig. 137, *1*, *2*) is the direct descendent of the Chalcolithic example known from Budakalász in Hungary, belonging to the Baden or Pécel culture dated at the period between 2200 and 1900 B.C. (Bóna, 1960c, p. 97). The later ones had lower sides and were longer (fig. 137, *3*, *4*). There is not much doubt that the vehicle was brought to eastern central Europe by the Kurgan people. The northern Pontic vehicles like those from Storozhova Mogila on the lower Dnieper and the Tri Brata near Elista (Gimbutas, 1956, pp. 78 ff.) date at least from the beginning of the second millennium B.C. Storozhova Mogila may predate 2200 B.C. judging from the form of the grave, which did not however contain datable finds. The earliest remains of vehicles of the Kurgan culture are presumably not yet discovered. The great expansion of the end of the third millennium may have been made by means of such vehicles. Four-wheeled wagons in post-expansion times remained an integral part of such cultures as Otomani, Únětice, and Fat'janovo and probably of all other groups of Kurgan origin in Europe in which the actual traces of vehicles are not yet proved. The mobility and consecutive expansions of the central European peoples may owe much to the wheel and to the horse. Bridle parts, cheekpieces, and ornamental plates are amply represented in the classical Otomani culture.

The western Transylvanian tells like Otomani, Socodor (Székudvar), 40 km northeast of Arad, Vărşand (Gyulavarsánd), 50 km north of Arad (Popescu, 1956a, 1956b), Sîntion (Puszta-Szent-János), district of Oradea (Alexandrescu, 1955) and others are 1 to 2 m high or more and include many habitation horizons. Potsherds, antler hoes, stone axes, and clay whorls are of related types in many horizons. Pottery showed gradual changes and variations in ornamental motifs. As an illustration, I am reproducing here pottery types from three habitation layers from Otomani (fig. 138), Socodor (fig. 139, *A* and *B*), and Sîntion (fig. 140). In addition to the ornamented pots, there were many sherds of large pots with broom-brushed surfaces and pinched ridge decorations as in the Tószeg B horizons.

The upper horizons of Otomani, Vărşand, Socodor, Sîntion, and Tószeg C have shown similar elements. The *ansa lunata* handles on some pots, for instance, are known from Tószeg C and from the Socodor horizon which is 40-60 cm deep from the surface (fig. 139, *B*, *3*). In the tell at Pecica such

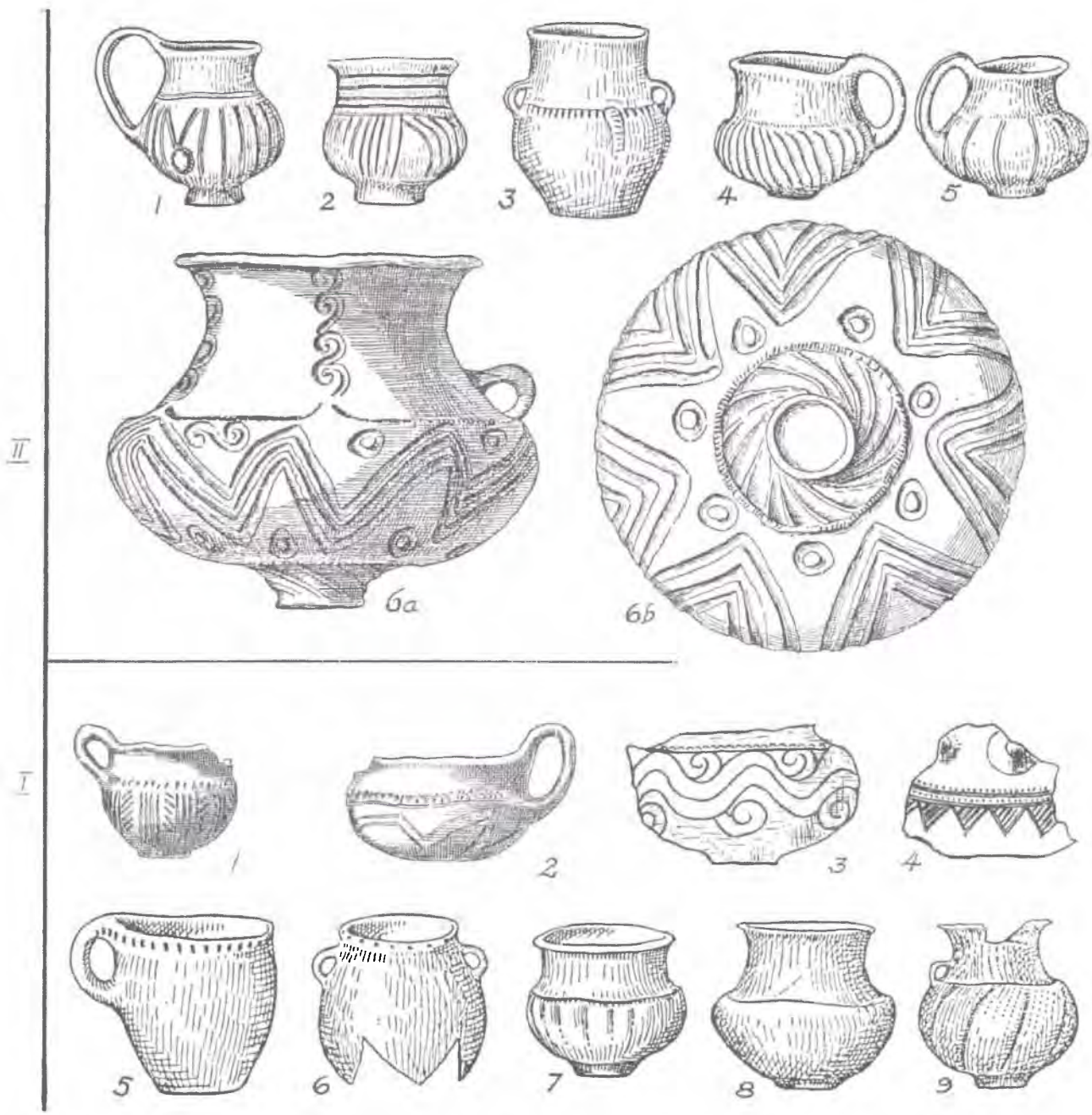


FIG. 138 A. Early Otomani pottery from the Otomani I (fortress) and Otomani II (island) sites, Transylvania. Scale approx. 1/5. *After* Roska, 1930, and Horedt, Rusu and Ordentlich, 1962.

handles appear, starting with horizon XII, and they are also found in the late Verbicioara group of southern Rumania and in Monteoru layer I a. Elements typical of Vattina pottery appeared in the upper horizons of Socodor (fig. 139, *B*, *5*) and Varşand. Other similarities in pottery and in metal artifacts indicate that the above-mentioned horizons of the Socodor, Varşand, and Tószeg C equate in time with the greater part of the habitation site at Füzesabony and the cemeteries of Hernádkak and Megyaszó of northern Hungary. These and many other sites can be classed as classical Otomani. To early Otomani belong layers I and II of the Otomani sites (fig. 138 A, I and II), and the early layers of Socodor and Vărşand. Classical Otomani ended with the central European ("Tumulus") invasion which struck the

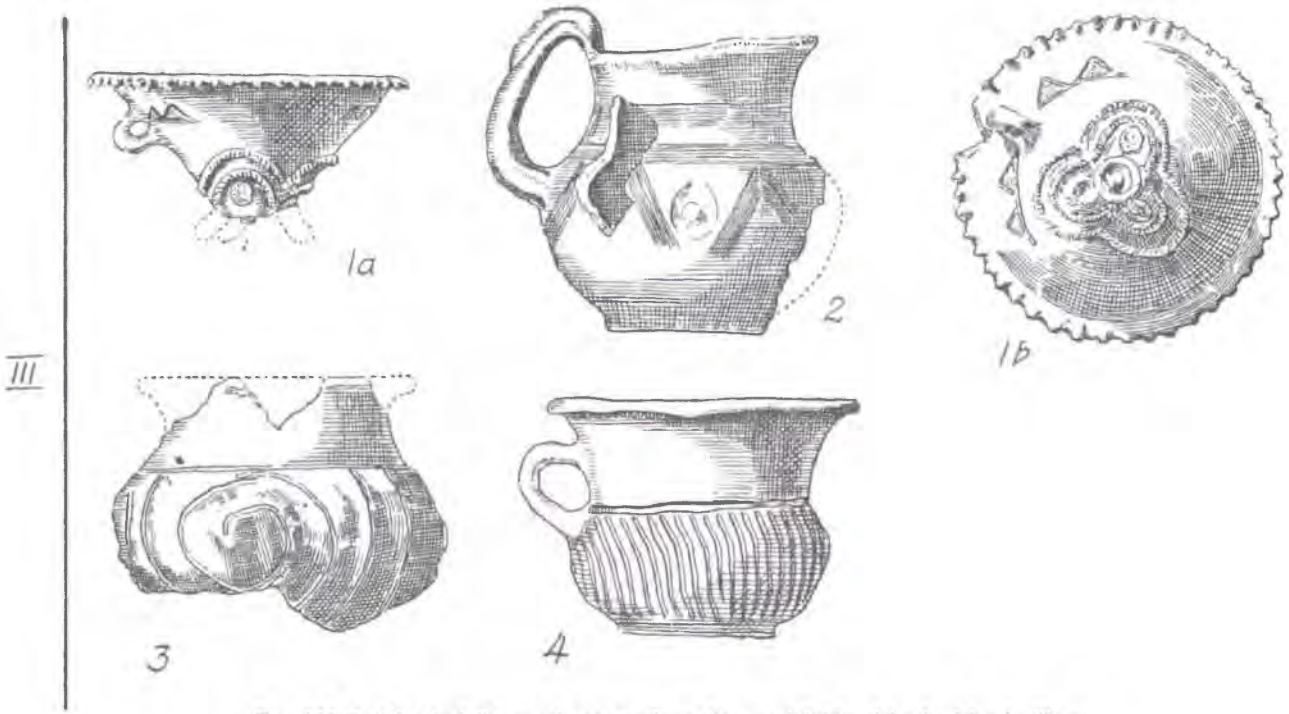


FIG. 138 B. Classical Otomani pottery from Otomani III level in the island village. Scale approx. 1/5. *After* Roska, 1930.



FIG. 139 A. Pottery from the three horizons of the habitation site of Socodor (Szekudvar), western Rumania. Section A. *I*, 120-100 cm. deep; *II*, 100-80 cm. deep; *III*, 80-60 cm. from the surface. Scale approx. 1/3. *After* Popescu, 1956b.



FIG. 139 B. Pottery from the habitation site of Socodor (Székudvar), western Rumania. Horizon IV, in the depth of 60-40 cm. from the top. Section (ditch) B. Scale approx. 1/3. *After* Popescu, 1956b.

Otomani territory and affected greatly the further development of this culture. The post-war period is late Otomani.

a. *Early Otomani, from the beginning of the second millennium to ca. 1550 B.C.*

Early Otomani was a long-lasting period as shown by stratigraphy, but is not yet as well known as classical Otomani. Two chronological phases can be clearly defined on the basis of the already mentioned cultural layers in the Otomani fortress and island sites.

Otomani I is a formative period with Kurgan elements well represented. Among them: acropolises, barrow cemeteries, corded decoration on pottery including hanging triangle motif and rows of incisions, stone battle-axes, and copper axes modeled on Caucasian prototypes. At the same time local elements persisted or were acquired from the neighboring cultural groups. Jugs or pots with funnel-shaped necks became dominant pot shapes during Otomani I (fig. 138 A, *1*). The spiral motif and flutings, typical of all later Otomani phases, were already present on the pottery of the Otomani I layer (fig. 138 A, *1*, *3*, *9*).

Finds from Gesprengberg hilltop village near Braşov in eastern Transylvania (fig. 141, *A* and *B*) seem to be close to early Otomani and to the so-called Schneckenberg culture which can be classed as early Monteoru. However, both cultural groups were very much related. Among remains of pottery were large vases with two small handles, jugs with incised rims (fig. 141, *A*, *1*, *5*), beakers, and bowls with funnel-shaped necks. Peculiar ornaments on some pots were made of plastic ridges with curved or spiraled ends (fig. 141, A, *3*). An analogous decoration is known on Tőszeg B sherds (Banner, Bóna, and Márton, 1957, p. 94, Abb. 3, *12*). The same site yielded a number of animal figurines made of clay, portraying sheep, cattle, and perhaps horses (fig. 141, *B*), miniature axes of clay (fig. 141, *A*, *11-15*), stone shaft-hole axes (fig. 141, *A*, *6*, *7*), celts, triangular flint arrowheads (fig. 141, *A*, *8-10*), and perforated animal teeth used for necklaces or pectoral ornaments. The latter traits are definitively eastern in character.

Some of the Transylvanian barrow cemeteries very likely belong to early Otomani. One such is known from Vládháza, district of Alba, in central Transylvania. The dead were buried in the contracted

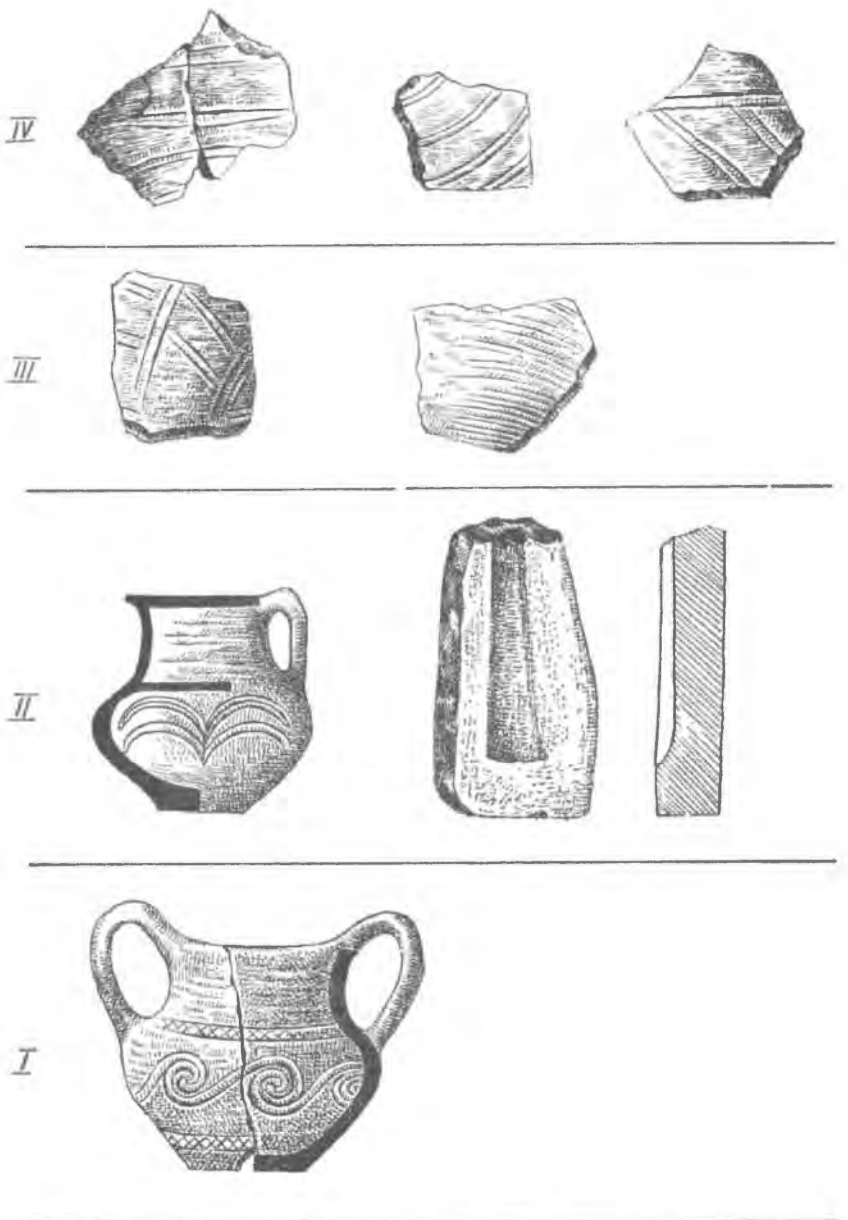


FIG. 140. Pots, sherds and a mold from the I-IV horizons of the habitation site of Sintion, district of Oradea, Transylvania. Scale: pots approx. 1/3. *After* Alexandrescu, 1955.

position and were equipped with large bulging vases with small handles decorated with pinched ridges (fig. 142, *1,2*) and beakers with incised ornament (fig. 142, *4*). In one grave a double-spiral pendant (fig. 142, *6*) and a hook of copper (fig. 142, *5*) were found. The guess date for Vládháza: not later than the eighteenth century B.C.

Comparisons of pottery from the lowest horizons at Socodor and from Tőszeg A and B show that early Otomani, comprising Otomani I and II, was parallel to Tőszeg A and B. It has already been mentioned that small rectangular houses of Otomani type (fig. 133) are present in the later part of Tőszeg B. Boss-decorated jugs, predecessors of the baroque classical Otomani pottery, appear in the latest horizons of the habitation site at Hatvan (fig. 129, *1-3*). Peculiar bronze axes with semicircular blades like the type known from the bivalved mold from Tőszeg B (fig. 143, *1*) and from Transylvania (fig. 143, *2*) are undoubtedly precursors of the later classical Otomani axes.



FIG. 141 A. Finds from the site of Gersprengberg near Braşov, Rumania. **1-5,** potsherds; **6-7,** fragments of stone axes; **8-10,** flint arrowheads; **11-15,** miniature clay axes. Scale **1, 2, 4-10:** 1/1; **3, 5, 11, 13:** approx. 2/3; **14, 15:** 1/2. *After* Teutsch, 1899.

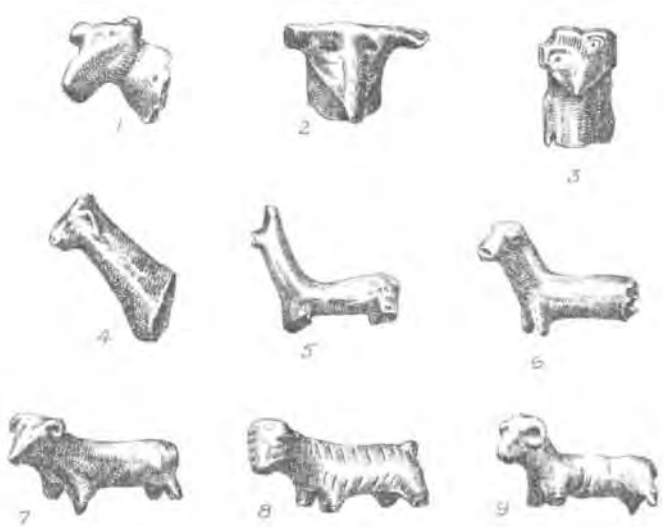


FIG. 141 B. Animal figurines of clay from the site of Gesprengberg near Braşov, Rumania. Scale **1-3:** 1/1; **4-9:** 3/4. *After* Teutsch, 1899.



FIG. 142. Finds from the barrow cemetery at Vládháza, distr. of Alba, Transylvania. **1, 2, 4,** pots; **3,** stone axe; **5,** copper hook; **6,** copper double-spiral pendant. Scale **1, 2, 4:** 1/4; **5, 6:** 1/3. *After* Roska, 1941a.



FIG. 143. Early Otomani axes. **1,** model from a mold found in Tószeg B; **2,** Sepse, northern Rumania. Scale approx. 1/3. *After* Roska, 1942a.

b. *Classical Otomani ca. 1550 B.C. – ca. 1400 B.C.*

Classical Otomani is distinct in the remarkable liveliness of the culture. This change was due to the increased exploration of the sources of copper and gold and the resulting trade. Ceramic art reached its culmination, and metal artifacts appeared in abundance. The greatest number of Otomani finds including large cemeteries belong in fact to this classical period.

In addition to Tószeg C and Füzesabony on the Tisza River, the chief representatives of this phase are: layer I, 1 of the hill-fort of Barca; the upper layers of the Várdomb, Socodor, Varsand, and Otomani; the middle layer of Tiszafüred, the cemeteries of Hernádkak and Megyaszó near Zemplen in northern Hungary (Tompa, 1937, 97), the cemetery of Streda on the Bodrog River in eastern Slovakia (Polla, 1958), and Pir-Szilagypér in Transylvania (Popescu, 1956b).

Inhumation was the commoner mode of burial. This is seen from the large cemeteries like Hernádkak and Megyaszó near Zemplen (Tompa, 1937, p. 97). However, in the cemetery of Hernádkak, along with 134 graves containing skeletons in the contracted position, three cremation graves appeared, and in the cemetery of Streda located near the Bodrog River, 35 out of 67 graves were cremation (Polla, 1958). From the above it can be deduced that the transition from inhumation to cremation was a gradual process, and that cremation seems to have supplanted inhumation somewhere at the end of the classical Otomani period. The dead lay in the contracted position. The men were usually equipped with an antler axe, a pot, and sometimes a clay whorl (a large bead?); the women, with only a pot.



FIG. 144. Classical Otomani pottery from Toszeg C. *After* Banner, Bona and Márton, 1957.

The most characteristic feature of the classical Otomani pottery is its decoration with bosses and spirals. Conical bosses are connected and encircled with running spirals in channeled technique, or engraved (figs. 138, III; 139, A, II, right, III, left; 144; pls. 29, *2*; 30). Vertical or diagonal flutings on the lower part of jugs are also frequent among the decorative motifs. Among the distinctive shapes were jugs with high raised handles, bowls standing on four conical bosses, amphorae with cylindrica necks, cylindrical cups, and various shapes of wide-mouthed pots. Among other ceramic finds were whorls and rattles.

In layer I of the site at Barca, there were discovered pins with perforated globular heads, axes of the flanged type with a V-shaped stop ridge, a short sword, a richly decorated dagger, and a "Bohemian" shaft-hole axe with a cylindrical profiled socket. At Tószeg C appeared a pin with a diagonally perforated globular head and a twisted stem, a Cypriote pin with a long head, spiral finger rings, and pendants (fig. 145, *1-5*). The same types of bronzes, as we already know, are present in the late Unetice assemblages, in the sites of the Veterov type in Moravia and the Mad'arovce sites in western Slovakia, and have a wide distribution all over central and northern Europe. Furthermore, contacts between classical Otomani and late Únetice are indicated by the appearance of typically Otomanian jugs in the Mad'arovce sites (Veselé near Piest'any, and Nitrianski Hrádok in southwestern Slovakia). The cemeteries like Megyaszó and Hernádkak also yielded pins with globular or conical and biconical heads (Tompa, 1937, p. 97, pls. 43-46). They were found in association with pins having small racquet heads (pl. 31, *15*) or rhomboid heads with folded corners (pl. 31, *9*, *13*), Cypriote pins (pl. 31, *24*), bronze spirals, hair-rings with thickening and overlapping ends (pl. 31, *17*, *18*, *19*, *23*), spiral arm-rings (pl. 31, *27-29*), needles (pl. 31, *25*, *26*), elongated triangular dagger blades (pl. 31, *5*, *6*, *8*), a shaft-hole axe with a crescentic butt and spiral decoration on the shaft (pl. 31, *1*), and a shaft-hole axe having a cylindrical socket (pl. 31, *4*). There were also amber and faïence beads (pl. 31, *22*). Similar bronzes came to light in Vatya II and III on the middle Danube (cf. Patay, 1938, pl. XIII, *5-7*, *11*).

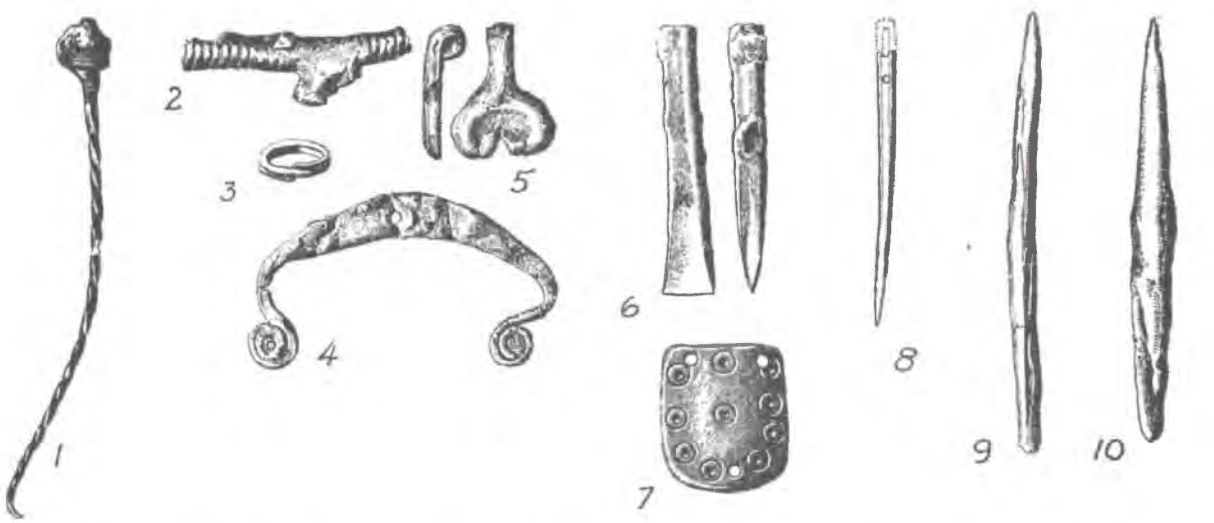


FIG. 145. Finds from Tószeg C. **1,** pin with a globular head; **2,** Cypriote pin with a long spiral head; **3,** spiral finger ring; **4, 5,** pendants; **6,** chisel; **7,** ornamented bone plate with perforations; **8,** bronze needle; **9, 10,** bronze awls. Scale **1-5, 7-10** approx. 2/3; **6** approx. 1/2. *After* Banner, Bona and Márton, 1957.

In the hoards like Apa (fig. 26) and Hajdusámson (fig. 146), we find most beautiful specimens of the classical Otomanian bronze-hilted swords (fig. 146, *1*), dagger blades, shaft-hole axes with an elongated butt (fig. 146, *4-11*), "Bohemian" axes with a long, cylindrical and profiled socket (fig. 146, *2*), and richly decorated battle-axes (fig. 146, *3*). The spiral pattern on bronze or gold artifacts and on pottery at this period attains a real magnificence of curve and coil. We see how effective the pattern can be on a series of sword blades, disc-shaped butts and bodies of the battle-axes, and pots (figs. 26; 146; pls. 29, *2*; 30). Spirals are found on gold plaques, bone cylinders, and antler discs (fig. 28, *8*). The appearance of some spiral art motifs could be due to inspiration from the Aegaean world. The Otomanians, however, created their own style using specific combinations of spirals with traingles, semicircles, and other geometric motifs, as well as of spirals and conical bosses on pottery (fig. 144; pls. 29, *2*; 30). The spiral art had a long tradition in Transylvania.

The idea of the earliest bronze-hilted swords in eastern central Europe, like those from the hoards of Hajdusámson and Apa, seems to have been originally borrowed from Mycenaean Greece of the shaft-grave period; the swords, however, are of local make. The Apa sword with a blade decorated with spirals and a five-bulbed pommel (fig. 26, *3*) points to a link with the hoard of Borodino in Bessarabia (pl. 12). The pear-shaped hair-rings of gold or bronze, so frequent in Transylvania, also have very close analogues around the Black Sea (cf. hair-rings from the hoard of Nikopol: pl. 9). Contacts to the north, with Únětice, the Baltic, northern Germany and southern Scandinavia, are witnessed by the spread of the same or related types of pins, especially those with a perforated globular head, of "Bohemian" axes with a cylindrical shaft-tube, daggers, and swords like those in figures 26, *2* and 146, *1*.

The classical Otomani culture was military. Never before did such great numbers of skillfully decorated daggers, swords, and battle-axes appear. Neither before nor after this period were weapons so graceful and in richness of decoration they are surpassed only by the daggers and swords in the Mycenaean royal shaft-graves. The Otomanians used horses. This is witnessed by a number of parts of bridles, antler or bone cheekpieces and round plates with perforations found at Socodor and Vărșand (Roska, 1944b, 46). Vehicles were used by the classical Otomanians as they were by the late Ūneticians.

Before the classical Otomani period gold objects were scarce. Now they were abundant, and numerous gold finds are known from eastern Transylvania. The most outstanding hoards consisting of gold beads, ornamental plates, hair-rings, bracelets, and axes are those from Țufalau (fig. 21) and Șmig

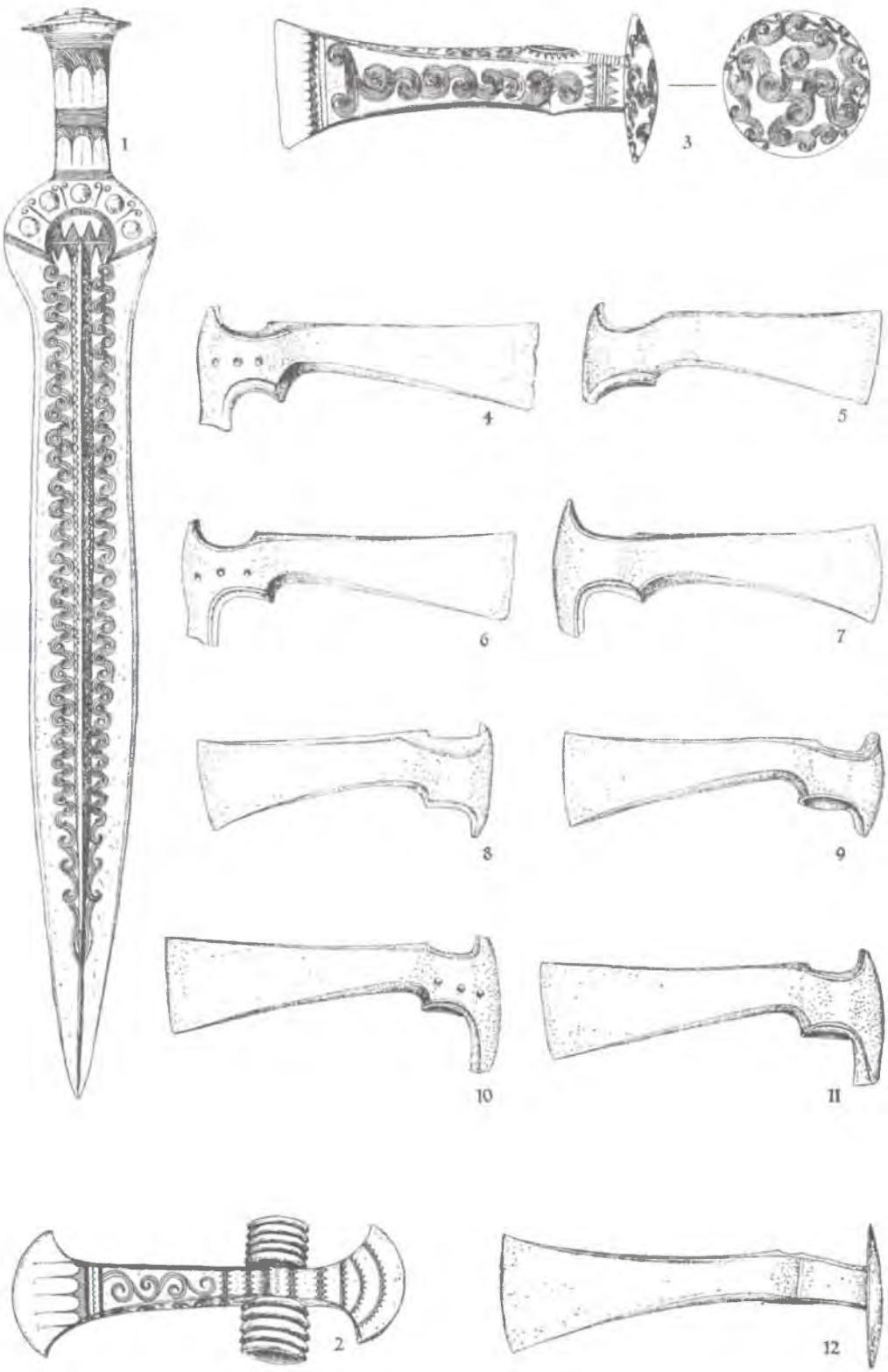


FIG. 146. Hoard of Hajdusámson, northeastern Hungary. **1,** bronze-hilted sword; **2,** axe with a vertical tubelike socket; **3, 12,** "Hungarian" battle-axes; **4-11,** shaft-hole axes of Transylvanian type.
Scale approx. 1/3. *After* Hachmann, 1957.

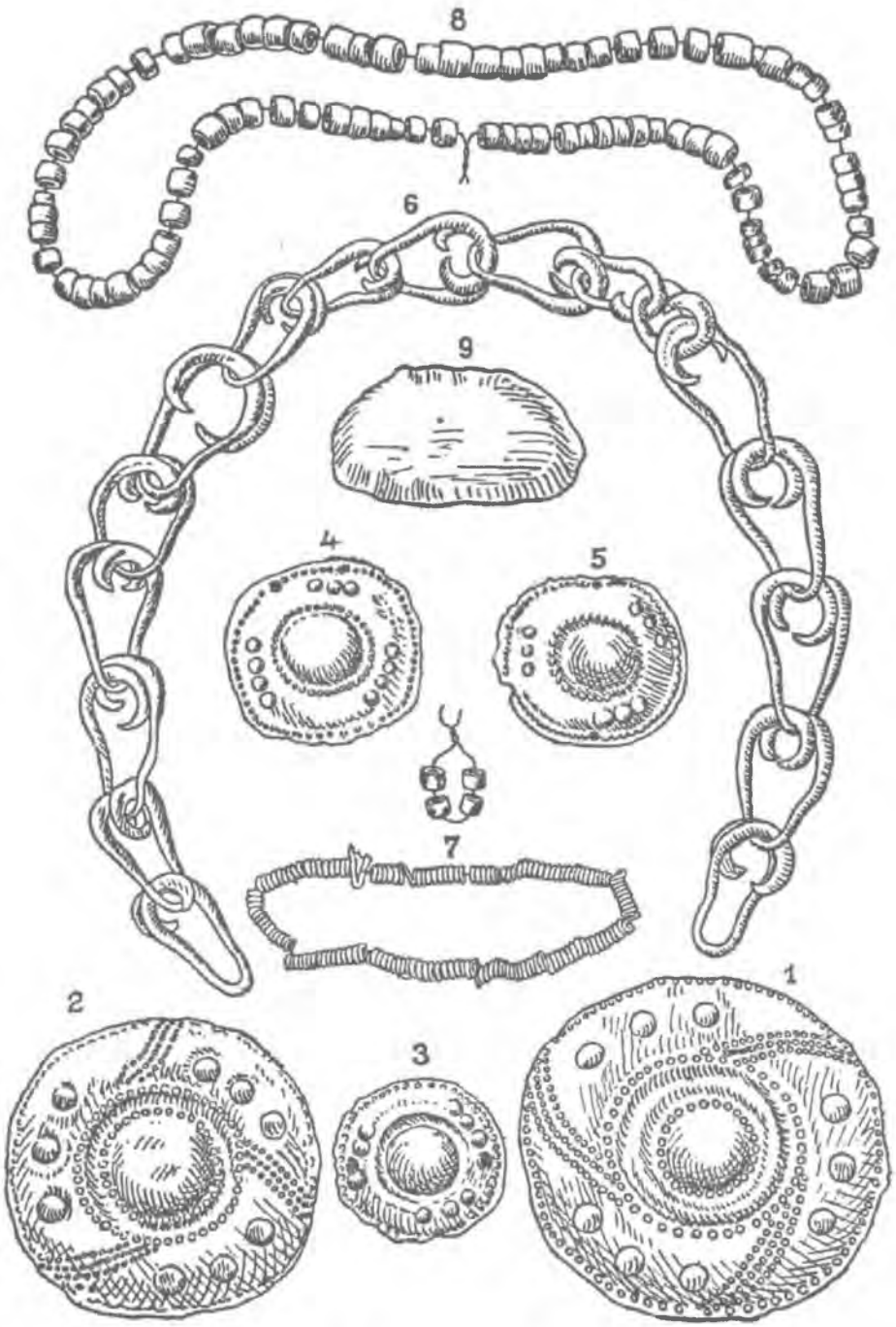


FIG. 147. Gold treasure from Şmig, district of Târnava-Mare. **1-5**, ornamental plates with embossed decoration; **6**, hair-rings; **7**, **8**, beads; **9**, unfinished gold plate. Scale 2/3. *After* Popescu, 1944.

(fig. 147), and Ostrovul Mare (pl. 32). Judging by the similarity of hair-rings, beads, and ornaments on gold plates, the Ţufalau, Şmig, and Ostrovul Mare hoards correspond with the late classical Megyaszó cemetery in northern Hungary (pls. 30, 31).

The chronological position of the classical Otomani culture is indicated by its contemporaneity with the late Únětice, and by the antler discs, bone cylinders, and cheekpieces ornamented with peculiar spiral decoration and pulley motifs showing contacts with Late Helladic I and II in Greece and more certainly with the latter, as was mentioned in the chapter on chronology.

c. *Late Otomani, ca. 1400 – ca. 1100 B.C.*

The flourishing period of the Otomani culture during its classical period came to an end around 1450 B.C. or somewhat later as is seen from the sudden culture change, and from the wide distribution of Tumulus bronzes and pots. Many tells in eastern Hungary and western Rumania were abandoned. At the same time the Incrusted Pottery and Vatya cultures west of the middle Danube in Hungary disappeared. Instead we find there great numbers of hoards and graves containing finds of the same character as those in lower Austria, southern Bohemia, Moravia, and western Slovakia. The focus of power was now north of the middle Danube. What happened to the Otomanians?

The distribution area of the Otomani culture was far from empty. The Otomanians were not exterminated. There are hoards and cemeteries which must belong to the persisting local population of the Otomani origin. There are also a number of treasures consisting of gold ornaments made in continuing Otomani style which probably belonged to the Otomani upper class and were hidden in time of war.

However, the Otomanian material culture was exposed to changes. The pottery and metal objects show a mixed character. In the middle and lower Tisza basin and western Rumania the Central European Tumulus culture, immediate successor of late Únětice, gained complete domination. The latest habitation horizons of the tells like Tószeg (Tószeg D), Várdomb topmost layer, and Vărşand (hoard, 50 cm below the surface) yielded bronzes and pots that undoubtedly link them with the Middle Bronze Age Tumulus culture of Phase B_1 and are the last finds of these large and long inhabited tells. The culture of Otomani character persisted only in northeastern Hungary, Carpatho-Ruthenia, and northwestern Rumania, along the southern foothills of the Carpathian Mountains. This late Otomanian group is called Felsöszöcs in Hungarian and Suciul-de-Sus in Rumanian after the cemetery with urn-graves on the upper Samoş River in Transylvania. A detailed survey of the 36 sites of this type is given by Kalicz (1960). This group is distinct in its pottery, including cups with high handles and profusely decorated with spirals in relief (pl. 33). Stratigraphically the finds of Suciul-de-Sus succeeded the classical Otomani in the site Rétközberenc near Paromdomb (Kalicz, 1960, p. 15). West of the upper Tisza River we meet the mixture of late Otomani and Tumulus elements. Some sites yielded representatives of both, as did the cemetery of Igrici-Matata. In it were found cups like those in Suciul-de-Sus (pl. 34, *2*) together with the Tumulus amphora with a cylindrical neck (pl. 34, *9*), a jug (pl. 34, *3*), a dish (pl. 34, *7*), and other finds (pl. 34, *1*, *4-6*, *8*). From this we see that the Tumulus elements dominated the area up to the upper Tisza in the east.

Late Otomani culture seems to have persisted in northeastern Hungary, in the districts of Szabolcs-Szatmár, Hajdu and Borsod, into the early Urnfield period. One of the few witnesses is the barrow of Niyirkarász-Gyulaháza with a cremation grave containing pottery of late Otomani character in addition to flange-hilted daggers, a "Hungarian" battle-axe with a cylindrical shaft-tube, socketed celts of Transylvanian type, a pin with four projections around the neck, and other finds that were frequent in Transylvania during the twelfth century B.C. (Mozsolics, 1960).

2. *The Monteoru culture in eastern Rumania*

Monteoru is another cultural group with definite roots in the Kurgan culture. Here again we have fortified villages on high riverbanks, house-graves, specific "Kurgan" burial rites, corded pottery and its survivals, stone battle-axes, and maceheads.

The sites are concentrated along the great rivers of Moldavia, the lower Siret and lower Prut and their tributaries, and in the west Monteoru occupied the eastern part of Transylvania (fig. 119). This belt northeast of the Carpathian mountains offers great natural advantages of soil, and these advantages

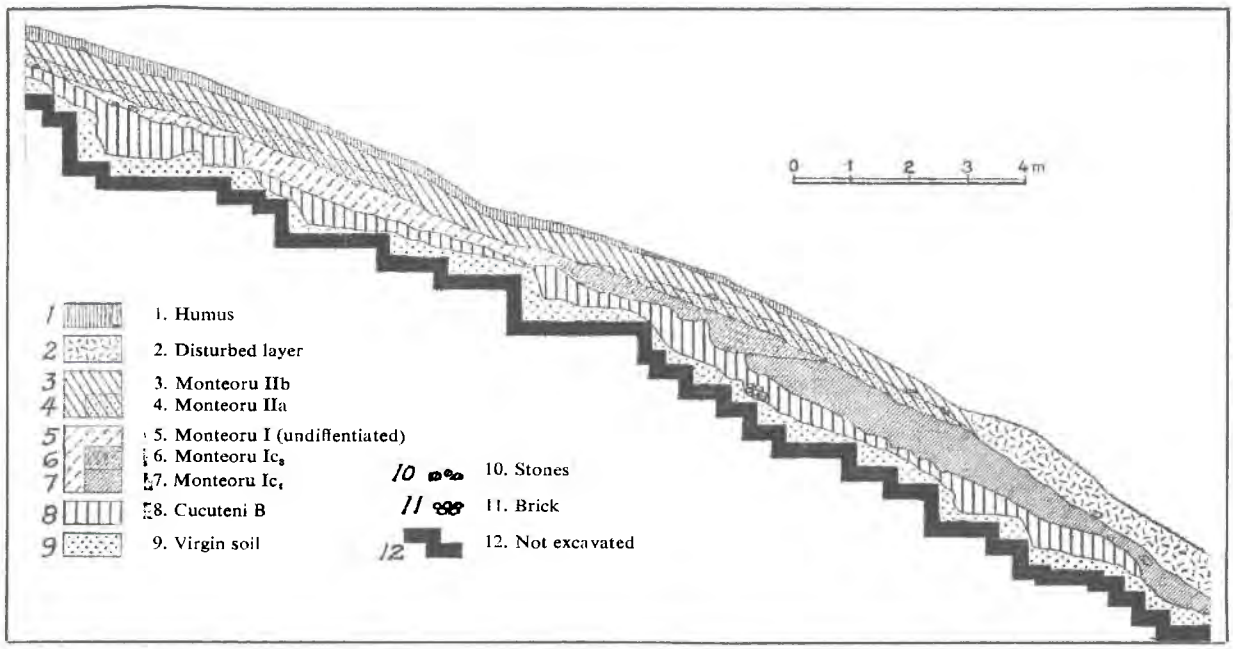


FIG. 148. Stratigraphy in the habitation site on Sărata-Monteoru. A section from the excavations of 1954. *After* Nestor and Zaharia, 1955.

in earlier times were utilized by the neolithic Painted Pottery farmers whose culture was in full flower before the Kurgan intrusion. The latter were chiefly stockbreeders and remained such throughout the first part of the Bronze Age. As time went by, however, the role of farming in the economy increased. The late Monteoru or Noua people were definitively river valley farmers.

The term *Monteoru* I shall use in its broadest sense, that is, as a name of a culture covering all phases of the Bronze Age and all its variants. Hence, the Early Bronze Age group such as the Schneckenberg around Brașov in eastern Transylvania, or the Late Bronze Age Noua culture will be treated as parts of Monteoru.

The site of Sărata-Monteoru near Buzău, district of Ploești, eastern Rumania, which has been under excavation for almost 30 years and has revealed a great number of finds dating from between the eighteenth and the fourteenth centuries B.C., is the most important one of this culture. Without it the eastern Rumanian Bronze Age would remain without a backbone and it therefore has the right to be used as a label for the whole culture.

Sărata-Monteoru is a hill at the end of the eastern Carpathian mountains; its top is called Cetățuia meaning "fortress" (pl. 35, *1*). There the traces of habitation are concentrated. Sărata meaning "salty" is a name of a small river near the hill. On the slopes and adjoining terraces or elevations, cemeteries corresponding to the habitation layers of Cetățuia were found. Sărata-Monteoru has eight horizons of occupation (fig. 148) and near it are four cemeteries with hundreds of graves of different phases.

The site was accidentally discovered by the architect Honzik who came across the graves on the terrace of the Sărata. The first escavations were made in 1917-1918 by Hubert Schmidt who found two cemeteries; in 1926 and 1927 the habitation site was discovered by I. Andrieșescu and Ion Nestor, and from 1937 through 1939 excavations were continued on Cetățuia when another cemetery of 200 graves was found. Since 1940 the digging on Cetățuia and surrounding area has been done almost annually and is still being continued under the supervision of Prof. Ion Nestor and Dr. Eugenia Zaharia. The finds have not been published since the excavations are not yet completed. They are stored in the Archaeological Museum of the Academy of Sciences in Bucharest and will appear in a large monograph prepared

by Nestor and Zaharia. Only short reports have previously appeared (Nestor, 1933b; 1944; Zaharia-Petrescu and Alexandrescu, 1951; Nestor, 1953; Nestor and Zaharia, 1955).

The discussion on Monteoru will be divided as follows:

a. *Formative or proto-Monteoru.* This period shows a cultural similarity over a large area of eastern Rumania, Moldavia, and the western Ukraine. To it belong the earliest phase of Sărata-Monteoru, Monteoru Ic_4, and the habitation site of Schneckenberg in eastern Transylvania. This period is roughly contemporary with early Pecica, Nagyrév and early Otomani. The approximate date: twentieth to eighteenth centuries B.C.

b. *Classical Monteoru* covers the whole sequence of the Sărata-Monteoru site starting with the level Ic_3. To this period belong also other outstanding sites: the habitation site Costişa II, the acropolis of Răcăciuni, and the cemetery and the habitation site of Poiana, all in the basin of lower Siret. It is parallel to the Otomani and Únětice cultures and ends with the end of the Sărata-Monteoru site at about 1300 B.C.

c. *Late Monteoru* covers the Late Bronze Age. It is known by a separate name, the Noua culture.

a. *Formative period or proto-Monteoru, ca. 2000 – ca. 1700 B.C.*

In the whole region west of the Black Sea from the lower Danube on the south to the upper Dniester on the north the cultural remains which succeed the Cucuteni B and the Gumelniţa Painted Pottery culture are all quite similar to each other. They are of Kurgan appearance and belong to the post-expansion phases during which the Kurgan elements gained dominance over the local Painted Pottery culture. This is a transitional period and I wish to interpret it as a formative one. The name "proto-Monteoru" suits best the purpose.

The stratified habitation sites of this period and the corresponding stone cist graves in barrows are well documented. In many cases they are on the top of the tells of the Cucuteni-Tripolye, and Gumelniţa cultures: in Sărata-Monteoru which was above the Cucuteni B layer, in Hăbăşeşti in Moldavia (Dumitrescu, 1954, pp. 477 ff.), Ariuşd on the Olt River (Nestor, 1933b, pp. 69-70), and Glina in Walachia near Bucharest (Nestor, 1928, 1933a.; 933b. p. 69). In several instances barrows with ochre graves were found on top of the Gumelniţa tells: Brailiţa on the lower Danube (Dragomir, 1959), and Stoicăni on the lower Prut (Petrescu-Dîmboviţa, 1950). The sites Brailiţa, Stoicăni, and Folteşti on the lower Prut yielded finds of several phases. The later stone-cist graves were usually equipped with plain, corded, or pseudo-corded jugs or two-handled vases. There are good examples from several layers of graves in Brailiţa (Dragomir, 1959).

Distinctive items in the layer Ic_4 of the Sărata-Monteoru site were small jugs (fig. 149, *2*), dishes (fig. 149, *1*), or gray double-handled vases, decorated with parallel horizontal lines, rows of dots and incisions, and with the zigzag motif. The whole decoration usually forms a sun pattern (fig. 149, *1*), which is the dominant symbol and expressed in a number of variations. With the same cultural group should be classed Schneckenberg in eastern Transylvania. Schneckenberg is a hill near Braşov on which the German archaeologist Teutsch discovered several sites (Teutsch, 1899) and after which another German archaeologist, Schroller, named the whole group of sites (Schroller, 1930, 1933). Stone-cist graves with skeletons in the contracted position, considered typical of the Schneckenberg group, are also known in the basins of Târnava Mare and the upper Olt Rivers (Roska, 1925). Graves were equipped either with a flint knife, a stone battle-axe, or a pot, and sometimes with a macehead.

Schneckenberg pottery comprised both rough kitchenware and fine pottery. Large vessels with a conical lower part and a short cylindrical neck, decorated with a pinched ridge, knobs, or small bosses were frequent. Clay was tempered with sand. The smaller pots were in the form of jugs (fig. 150, *1*, *2*), *4*, *6*, *10*, *13*), cups (fig. 150, *7*, *9*), two-handled pots (fig. 150, *3*, *12*), beakers (fig. 150, *11*), and bowls. There

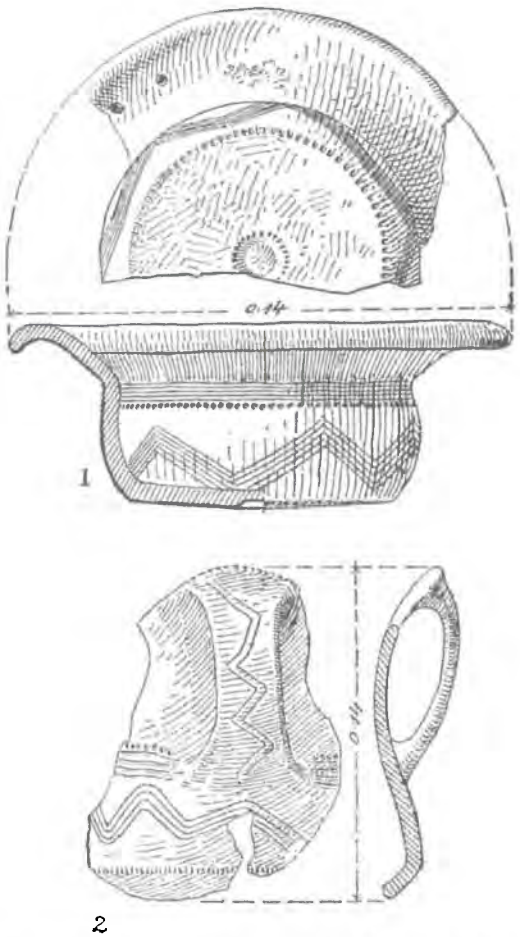


FIG. 149. **1,** dish and **2,** jug from the earliest horizon (Ic_4) of the Sărata-Monteoru site. *After* Nestor and Zaharia, 1955.

were also covers for pots, ladles, and miniature clay axes. Although many pots were undecorated like early Pecica ones, some have shown cord decoration or imitation of it (fig. 150, *11*, *13*). Among stone implements were triangular flint arrowheads with hollow bases (fig. 151, *2-4*) and large sickle-like curved knives (fig. 151, *1*). The same types of arrowheads and knives are known from the northern Carpathian area. Pins and belt hooks were made of bone (Popescu, 1944, fig. 13).

Prox, who described the Schneckenberg culture in 1941, considered the above-mentioned assemblage as Schneckenberg B and C. In his scheme the earliest Schneckenberg or Schneckenberg A is represented by finds from the site on the Gesprengberg near Braşov (fig. 141 A and B), which, as I understand, if not successive to the Schneckenberg, shows relationship to early Otomani.

Round ornamental copper plates were used, as in the early Pecica and the early Únětice cultures, and copper awls, rectangular in cross-section, very similar to those known from the Catacomb-graves and early Timber-graves of southern Russia. Flat axes and shaft-hole axes of massive proportions called Transylvanian axes of Baniabic type (Roska, 1933b), and successive Darabani axes are known from hoards and as isolated finds. They were distributed all over eastern central Europe between the Black Sea and Czechoslovakia and were produced in the metalliferous centers of the Carpathians (Nestor, 1955). They were cast in bivalved molds.

The proto-Monteoru has very close relatives in northern Moldavia, Bucovina and Podolia in the upper Siret, upper Prut and upper Dniester basins. Barrows with stone-cist graves containing contracted

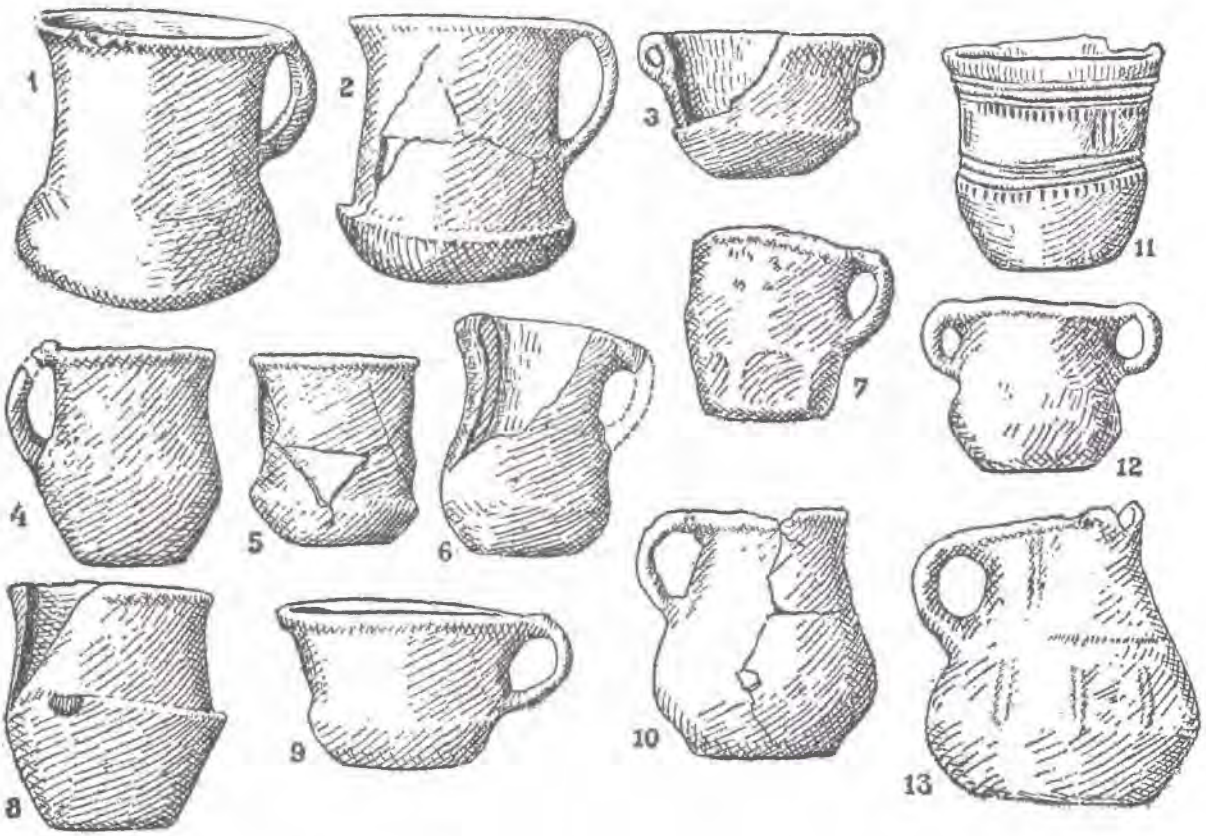


FIG. 150. Pottery from the habitation site of Schneckenberg near Braşov, eastern Rumania. **1, 2, 4-8, 10, 13,** jugs; **3, 12,** two-handled pots; **7, 9,** cups; **11,** corded beaker. Scale approx. 1/4. *After* Popescu, 1944.

skeletons equipped with two-handled vases with cord or pseudo-cord decorations, flint knives, celts or arrowheads form in this northern Carpathian area a rather uniform group known in the literature as the Bilopotok culture (see figs. 299, 300). In the south it reached the site of Costişa I on the Bistriţa River. The types of graves, stone implements, and pottery of Schneckenberg, Monteoru Ic_4, and Bilopotok are so alike that Bilopotok can be considered as a very close cousin. Only during the later period, when cultural differentiation progressed, did the Bilopotok group go its own way, differing from the Monteoru

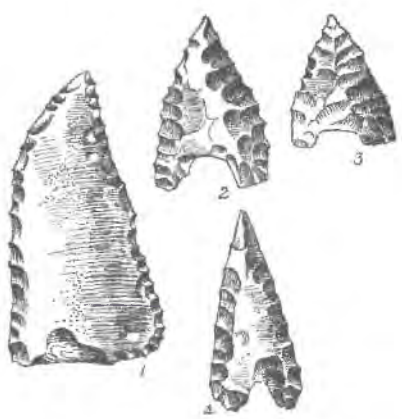


FIG. 151. **1,** flint sickle or knife and **2-4,** arrowheads from the Schneckenberg site near Braşov, Transylvania. Scale *ca.* 1/2. *After* Schroller, 1933.

and developing into the North Carpathian Komarov entity. But both cultures, the Monteoru and the North Carpathian, maintained close relations throughout the Bronze Age.

In Walachia and along the lower Danube another group or culture called Tei developed showing southern affinities. It succeeds this Early Bronze Age which around Bucharest is known as Glina III, but its further development will not be followed in this monograph. Monteoru proper continued in the eastern Carpathian area and Moldavia.

b. *Classical Monteoru, ca. 1700 – ca. 1300 B.C.*

The stratigraphy of Sărata-Monteoru shows the long continuum of one culture. Layer after layer yielded peculiar Monteoru vases with high handles (fig. 152, *2*, *3*; 153, *2*) and enormous pear-shaped sacrificial vases with high funnel-shaped necks (pl. 36, *1*, *3*). The gradual change of the pottery style can be very well studied in every chronological phase; pottery here is the best witness of the fact that the Monteoru people lived on this hill-top village for many centuries, but burial rites and stone and bone artifacts also show continuity. The stratigraphical picture resulting from the long years of excavation is as follows:

	Sărata-Monteoru		
	Period	*Stratigraphy in the habitation sites*	*Sacrificial areas and cemeteries*
ca. 1300 B. C.			
	Late Classical	Monteoru II b	Cemetery No. 1 Cemetery No. 3
		Monteoru II a	Sacrificial area Cemetery No. 4
ca. 1450/1500 B. C.			
	Early Classical	Monteoru I a	Cemetery No. 2
		Monteoru I b	
		Monteoru I c_1	
		Monteoru I c_2	
		Monteoru I c_3	Sacrificial area
ca. 1700 B. C.			
	Formative	Monteoru Ic_4	
ca. 2000 B. C.			

The lowest horizons, Monteoru Ic, are represented by habitation remains over a wide area and by related pottery. Only the ornament varied: in Ic_3, on the bases of pots or their covers, the sun motif started to be made in relief, and in Ic_2 the ornament in relief dominated. Pot covers show a rather complicated sun design made of concentric circles, stars, dots, and rays. The typical overhanging projections on top of the handles (cf. those in fig. 152, *2*, *3*) and the anthropomorphic forms of sacrificial vases (fig. 152, *1*) appeared. In Ic_1 ornament in relief disappeared and instead deep incised lines were applied, while the overhanging projections on handles became longer and concave. In Ib pottery forms were similar, but in decoration waved lines forming interconnecting spirals or garlands took the place of vertical lines and zigzags; they continued throughout the later classical Monteoru phases (fig. 153, *2*). Grains of wheat, barley, and millet and stone sickles (pl. 37, *1*) indicate farming, and elongated triangular



FIG. 152. Pottery from the upper layer of the habitation site at Costişa near Buhuşi, Moldavia. **1**, sacrificial vase in form of a female (?) figure; **2, 3**, two-handled vases of Monteoru Ic_2 type. Scale: **1, 3**, approx. 1/3; **2**, 2/3.
By courtesy of A. Vulpe, Bucharest.

arrowheads may indicate hunting. The dead were inhumed in the contracted position, but in the large fireplace at the side of the habitation area called Monteoru Ic_3 burnt skeletons were found. They may mean human sacrifice.

Another outstanding and also stratified habitation site is the fortified village of Costişa in Moldavia excavated in 1959 and 1960 (Vulpe and Zamoşteanu, 1962). The village was 60 m above the valley of the lower Bistriţa River, arranged on an ellipsoid terrace measuring 100 by 60 m. Three ditches encircled the village. Burnt clay and baked earth witness a series of houses. Pottery from the lower stratum, or Costişa I, was like Bilopotok in the upper Dniester basin. Two-handled vases decorated with incised hanging triangles (fig. 299) have exact parallels in the Podolian Bilopotok cemeteries of the North Carpathian culture. Finds from the upper stratum, Costişa II, yielded finds of the Sărata-Monteoru Ic_2-Ic_1 or Ib type (fig. 152). If the Costişa I or Bilopotok finds belonged to a different group of people, the appearance of Monteoru finds in the upper layer may indicate the northward expansion of the Monteoru culture.

From the phase Ic_3 and onward the Monteoru people may have lived on warlike terms with their neighbors. A number of acropolises were built in strategic places on high river terraces and promontories.

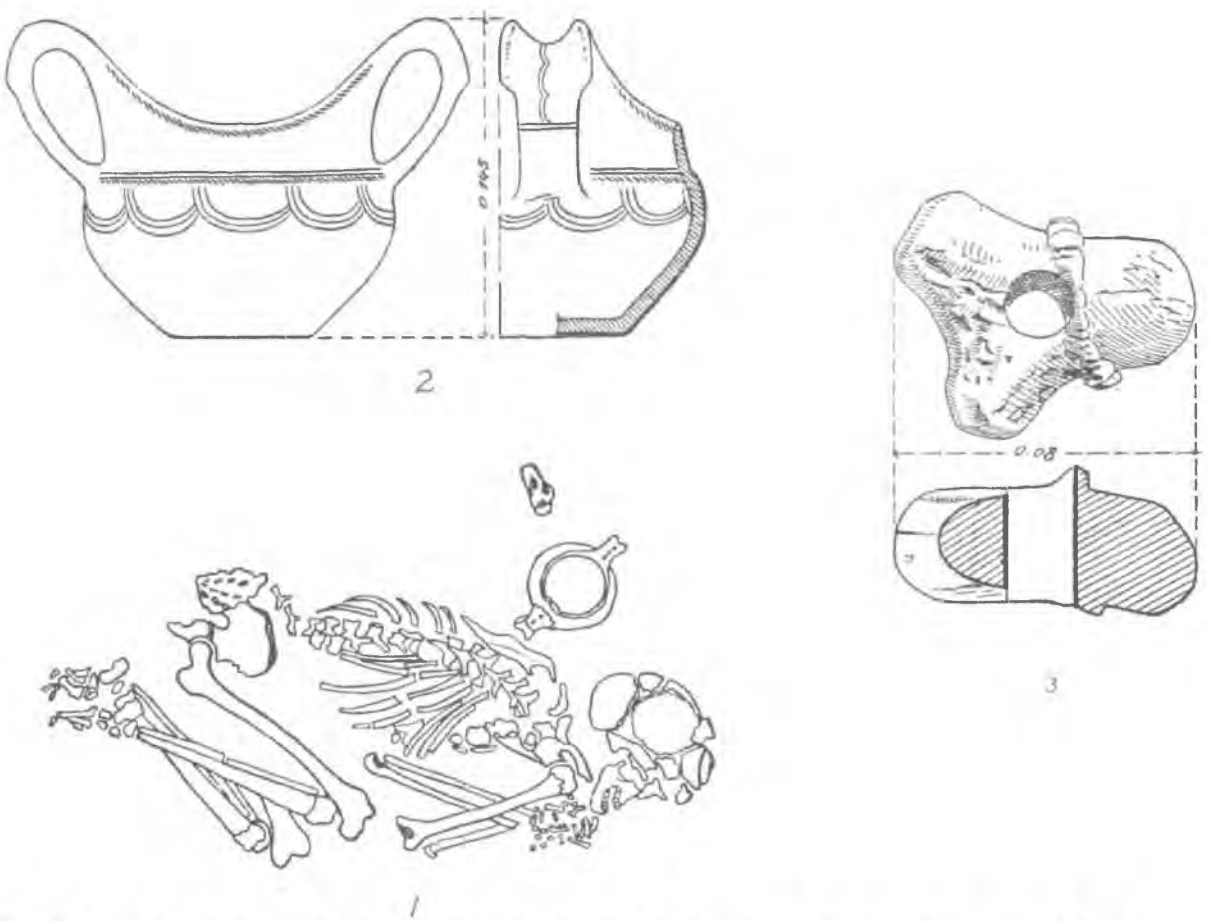


FIG. 153. 1, grave from cemetery No. 4 in Sărata-Monteoru; 2, pot; and 3, antler macehead from the same grave. *After* Zaharia-Petrescu and Alexandrescu, 1950.

One of the most impressive fortresses was Răcăciuni that dominated the whole valley of the Siret River (pl. 35, *2*). Located on the highest terrace of the Siret it had a plateau of 100 × 50 m and was fortified with ditches and a high rampart. Excavations of 1950 and 1951 revealed remains of habitation dating from the period of Monteoru Ic_3 and Ic_2 (Vulpe, 1961a).

Changes occurred at Sărata-Monteoru between horizons 1b and 1a, and remains of habitation are found only on the top of the hill encircled by fortifications. Layer 1a and cemetery No. 2 revealed a great number of bronze, gold (fig. 154), gold-plated, silver, and bitumen hair-rings, faïence and amber beads, and bronze bracelets with overlapping ends. Bone cheekpieces of bridle-bits were found, some

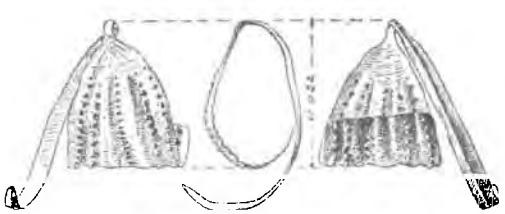


FIG. 154. A hair-ring of gold with embossed ornament from Sărata-Monteoru layer Ia, cemetery No. 2. *After* Zaharia-Petrescu and Alexandrescu, 1950.

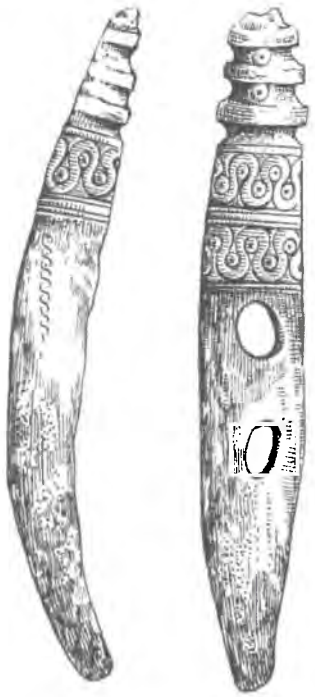


FIG. 155. Cheekpiece of bone with Mycenaean spiral-pulley ornament. 9.5 cm. long. Sărata-Monteoru layer Ia, cemetery No. 2. *By permission of Nestor and Zaharia*, Bucharest, 1960.

of them decorated with the Mycenaean spiral and pulley ornament (fig. 155) like that from the late Únětice (Mad'arovce) site of Nitrianski Hrádok (fig. 28, *5*; pl. 10). Hair-rings of gold or bronze with broadening overlapping ends show wide commercial contacts. As previously mentioned, the same types appear between central Europe and the Caucasus. The basket-shaped gold hair-ring with embossed parallel rows of small bosses (fig. 154) shows general similarity to the basket-shaped hair-rings from the treasure of gold jewels in Troy (Schliemann, 1880, Ilios, p. 460, No. 703). Related basket-shaped ornaments are known from the hoard of Nikopol' in the western Ukraine (pl. 9, *3*, *4*) found in association with a Caucasian Faskau axe and regular hair-rings of gold. To the same phase belongs the gold treasure from Braşov containing hair-rings and a spiral arm-ring with looped ends (Popescu, 1956a, p. 204, fig. 121, *6-14*).

The previously described hoard of Borodino (pl. 12) is either synchronous with horizon Ia or immediately succeeds it together with another classical Monteoru acropolis and cemetery of Poiana on the Siret River (Vulpe, E. and R., 1933; Dunăreanu-Vulpe, 1938). Both contained very similar battle-axes of diorite (pl. 12, *4*, *6*). In the fortress of Poiana a copy of a Mycenaean rapier was found, but it was severely damaged; only the upper part of the blade with shoulders ending in inward curving projections has been preserved (Vulpe, E. R., 1933, p. 279, fig. 23, *19*; Nestor, 1933b, p. 97, fig. 21, *7*). The rapier seems to represent the general type of Mycenaean rapiers current during the second half of the fifteenth century B.C. The probable date for the hoard of Borodino is *ca.* 1500 B.C.-1450 B.C. Hence the Sărata-Monteoru horizon Ia may have started by the end of the sixteenth century B.C.

The importance of the Monteoru culture in transcontinental trade in the middle of the second millennium B.C. is seen from the typically Mycenaean ornament on the cheekpiece of a bridle bit from Sărata-Monteoru Ia (fig. 155) and the Borodino silver pin (pl. 12, *11*; pl. 13, *2*), the Mycenaean rapier from Poiana, the Caucasian type of maceheads (pl. 12, *2*) and axes (pl. 12, *4-8*), and from the widely spread types of hair-rings as well as from amber and faïence beads. Its geographical position and per-

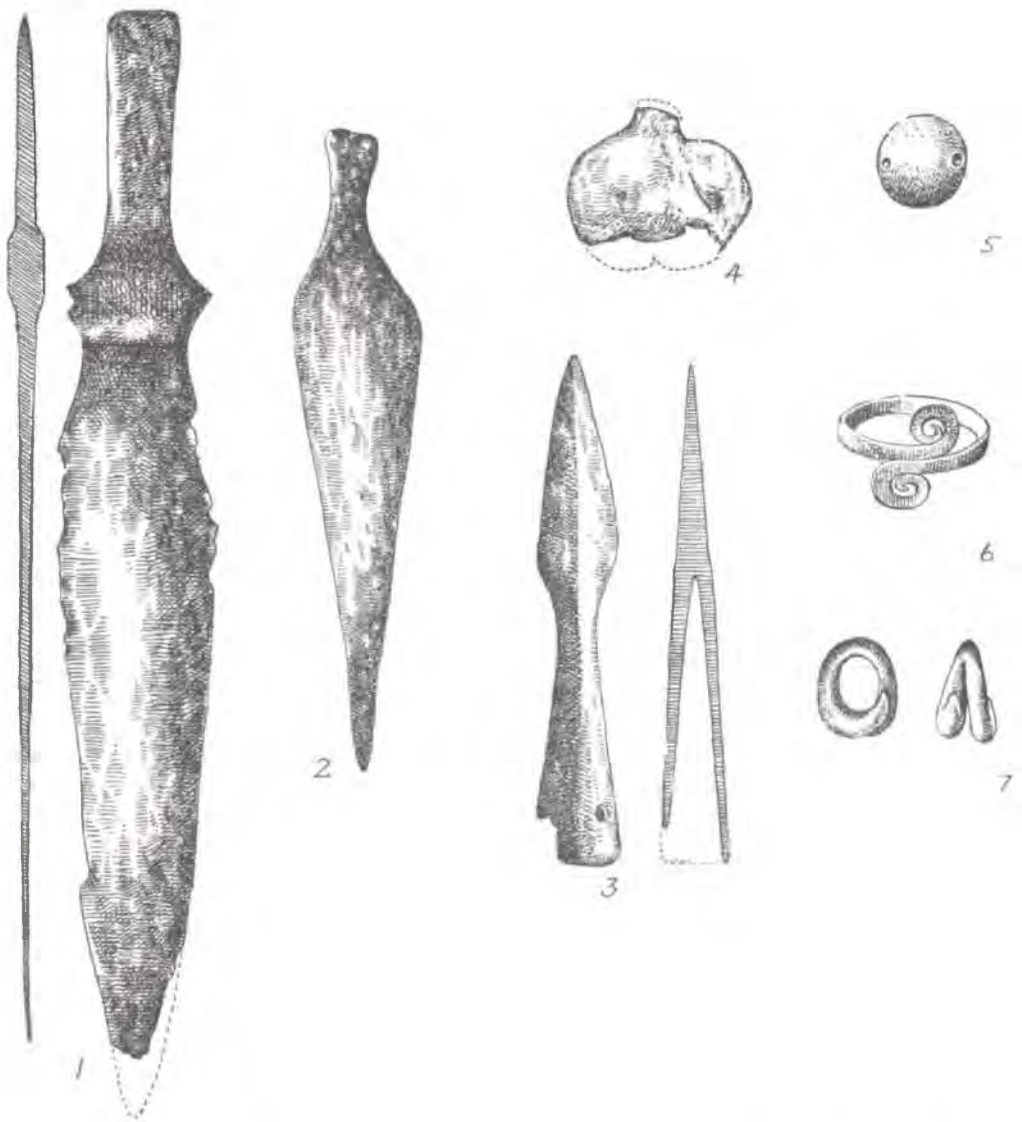


FIG. 156. **1, 2,** bronze daggers and **7,** hair-ring from the graves of cemetery No. 1, Sărata-Monteoru IIb; **3,** spearhead, **4,** pendant, **5,** ornamental plate and **6,** finger-ring from the grave of cemetery No. 4, Sărata-Monteoru IIa. Scale 2/3. *By courtesy of Nestor and Zaharia*, Bucharest, 1960.

haps sources of salt at Sărata destined it to be a link between the south, west, and east. The fact that here the Caucasian and the Mycenaean influences met proves to be of extreme value for the chronological comparisons.

During Sărata-Monteoru II trade activities continued. Daggers with analogies in the classical Timber-grave culture (fig. 156, *1*; cf. figs. 69, *3*; 381) were found in cemetery No. 1 which equals layer IIb of the habitation site. In cemetery No. 4 a spearhead appeared (fig. 156, *3*) which also has parallels in the same phase of the Timber-grave culture (cf. the cemetery of Pokrovsk in the lower Volga area: Tallgren, 1926b, *ESA*, II, fig. 50, *1*). Amber and faïence beads, many of which were brought to light in cemetery No. 4, show that the Monteoru people were situated on the route of the amber and faïence trade. Small spherical white and light blue faïence beads have very close analogies even in the eastern Caucasus at the cemetery of Khorochoj (fig. 341, *5*, *9*) and in northern Iran. Persisting relations with central Europe are shown by solid sacred ivy-leaf pendants (fig. 156, *4*) and finger-rings with ends

spiraled in opposite directions (fig. 156, *6*). The forms are typical of the Tumulus expansion period (Koszider Phase). These objects date the Sărata-Monteoru layer IIa to about 1400 B.C. or the early part of the fourteenth century B.C.

Almost all forms of bronze objects from classical Monteoru are either of western or eastern origin, but this does not mean that metallurgy was unknown. In Sărata-Monteoru IIb a mold for a shaft-hole axe was found (pl. 37, *2*), of a type with ribbed butt confined to the Monteoru culture. They are known in greater numbers as isolated finds; their variations of form indicate that they were current in eastern Rumania for a fairly long period, from Ic_3 to IIb (Vulpe, 1964; Zamoșteanu, 1964).

The great cemeteries with hundreds of graves, located on the terraces of the hill of Sărata-Monteoru and attributed to Ia and IIa and b, as well as the cemetery of Poiana, show rather uniform burial rites. The dead lay on their sides in the contracted posture, equipped with one or several pots placed at the head, and cemetery No. 2 graves were surrounded and covered with stones. A macehead of stone or antler (fig. 153, *3*), a battle-axe made of semi-precious stone or a bronze dagger in men's graves are the only signs of the more powerful people in the Monteoru society. Gold and silver hair-rings, bronze rings, bracelets and neck-rings belong to women's graves. The great number of children's graves and of multiple graves, usually mother's and child's, bring to mind the customs of the people in the northern Pontic area. In cemetery No. 1 of Sărata-Monteoru phase IIb cremated children's graves in urns appeared. In all other Monteoru graves inhumation was universal.

On the terrace at the Sărata-Monteoru habitation site of IIa a large sacrificial areas was discovered. It was of elliptical form and paved with stones. Small clay altars were found at its ends. Large-scale offerings are indicated by askoi and huge sacrificial vases some of which contained shells, grains of wheat, elk's antlers, and bones of domestic animals, among which horses' leg bones and hoofs were identified.

c. *Late Monteoru, ca. 1300 B.C. – ca. 750 B.C.*

Although the Late Bronze Age culture in eastern Transylvania and Moldavia carries the name Noua, called so after the cemetery near Brașov, it belonged most probably to the Monteoru people who lived in the same area to the end of the Bronze Age and later. This is seen from typology and from stratigraphy. The late Monteoru people practised the same burial rites. Two-handled vases were the commonest and most characteristic companions of the dead for centuries. Habitation sites are found on flat river terraces with thick layers of ashes and many bones of domestic animals. Some sites yielded traces of above-ground, rectangular houses in the form of fragments of daub and wickerwork, but fortified villages on high river banks are not known from this period.

The sites are concentrated in the valley of the middle Prut, particularly its tributaries Jijia and Bahlui, and along the western tributaries of the middle Dniester north of Kishinev. Late Monteoru, hardly known ten years ago, now counts over 50 sites in Moldavia alone and in the middle Dniester area (Petrescu-Dîmboviţa, 1953a, 1953b; 1955; Meljukova, 1961; Florescu, 1964).

The largest cemetery, with 118 graves, is Trușești in the district of Suceava, excavated in 1951 (Petrescu-Dîmboviţa, 1957). It was placed on a terrace of a small river, a tributary of the Jijia in northern Moldavia and in the same area where the Neolithic habitation site of Cucuteni A was found. As a rule graves contained one pot with one or two handles (fig. 157), and a meat bone beside it or small bones placed in rows one above the other. A gold pendant appeared only in one grave. Vases were plain; a few were decorated with horizontal bands of incisions (fig. 157, *2*), twisted and simple cord impression and diagonal, oblique, or horizontal flutings. Some handles had button-shaped projections (fig. 157, *1*, *3*, *5*), witnesses to the persisting Monteoru type. Graves of the same type, containing two-handled vases, were also found in the Transylvanian cemeteries of Noua, Cluj, and Teiuș, near Alba (Petrescu-



FIG. 157. Late Monteoru pots from the cemetery of Truşeşti, Moldavia. *After* Petrescu-Dîmboviţa, 1953.

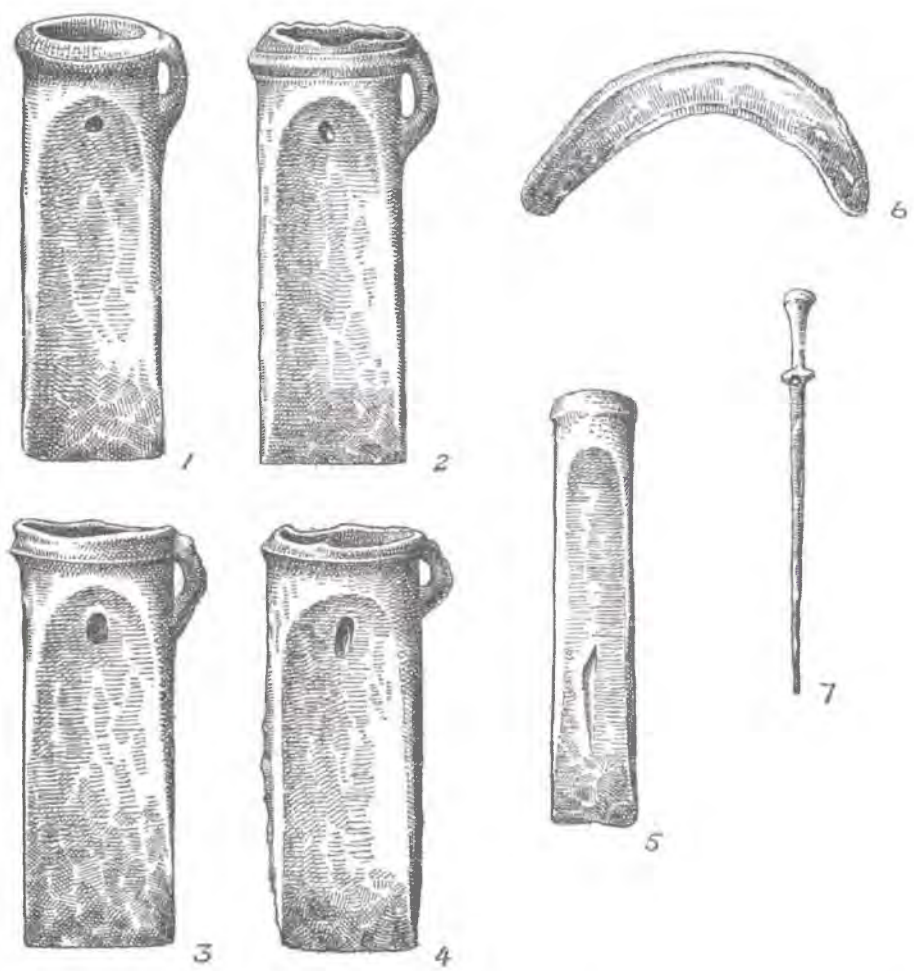


FIG. 158. The hoard of Raşeşti, Moldavia. **1-4,** socketed celts with flat sides and a hole; **5,** socketed chisel; **6,** sickle; **7,** pin with projections on the neck. Scale approx. 1/2. *After* Petrescu-Dîmboviţa, 1953.

Dîmboviţa, 1953a, pp. 478 ff.). The usual bronze artifacts in graves were pins with a widening head with projections on the neck (like that in fig. 158, *7*) and bracelets with notches. Bronze artifacts were frequently imitated in bone (Petrescu-Dîmboviţa, 1957, p. 18, fig. 12, *2*; Meljukova, 1961, fig. 9).

Other cemeteries from Moldavia and eastern Transylvania are either contemporary with that of Truşeşti or are slightly earlier or later. The cemetery of Holboca in the lower Prut basin with 15 graves is considered to be successive to Truşeşti (Petrescu-Dîmboviţa, 1953a).

The chronological position of these late Monteoru cemeteries is indicated by bronzes found in hoards and as isolated finds. The most frequent bronzes distributed all over Moldavia and eastern Transylvania and contemporary with the cemeteries of Truşeşti and Noua are pins with projections (Warzennadeln), which seem to have been characteristic late Monteoru ornaments, socketed celts with flat sides having an oval or round hole in the upper part, hooked sickles, and sickles with rivet holes. A typical hoard of this phase in Moldavia is Râşeşti comprising four socketed celts with flat sides and a hole in the upper part (fig. 158, *1-4*), a socketed chisel (fig. 158, *5*), a pin with projections (fig. 158, *7*), and a sickle having two rivet holes (fig. 158, *6*).

Bronzes of Râşeşti type can be labeled as western Pontic. Their distribution covers the eastern Carpathian area and the western Pontic belt between the lower Dnieper in the north to eastern Bulgaria in the south. The Koblevo hoard near Odessa (fig. 98) and the Avraamovka hoard (fig. 102) also can be grouped as western Pontic although they include some forms of socketed celts widely spread over eastern central Europe (fig. 98, *3*). The hoard of Drajna de Jos already referred to, contained battle-axes (fig. 104; 105, *2*) which can be considered to be of western Pontic type in addition to the Carpatho-Transylvanian hooked sickles (fig. 105, *1*), central European spearheads and flange-hilted swords (fig. 105, *3-5*). The distribution of certain metal types restricted to the western Pontic area and eastern Transylvania, as well as a great number of molds known from the hoards and workshops between the lower Dniester and lower Dnieper (figs. 96, 98, 102), speak for the existence of local metallurgy although copper ore had to be brought from the northern Carpathians or elsewhere.

Commercial contacts with central Transylvania and the whole Carpathian region are indicated by the distribution of Carpatho-Transylvanian bronzes over the entire Monteoru territory. To this class of bronze artifacts belong hooked sickles, socketed celts with a projecting socket, and other socketed celts best represented in the tremendous hoard of Uioara de Sus (figs. 87, *2*; 88). To the general central European types belong the flame-shaped spearheads (fig. 87, *13-15*), flange-hilted swords known as isolated finds (Petrescu-Dîmboviţa, 1953a, figs. 12, 13), swords from the hoards of Drajna de Jos (fig. 105, *3-5*), tanged and button sickles, knives with ring ends, and median-winged axes. In Pavlovka, Bessarabia, was found a central European cup of beaten bronze of Friedrichsruhe type together with a Carpatho-Transylvanian socketed celt (fig. 95, *1*, *2*). The fact that hoards include objects of various origins, western Pontic, Carpathian, central Transylvanian, and eastern Alpine, speaks for intensive trading activities. Salt mines in eastern Rumania may have interested the central European Urnfield people.

Relations between the Monteoru and the Ponto-Caucasian people continued. These are seen from the Ukrainian hoards already discussed which comprise the western Pontic and Carpatho-Transylvanian bronzes in association with the Caucasian types. The hoard of Rajgorodok from the district of Kharkov contained a Caucasian bulbed macehead (fig. 96, *3*) in association with celts and sickles of western Pontic type, and the hoard of Berislav has Caucasian shaft-hole axes (fig. 342). Western Pontic socketed celts were found in the northern central Caucasus (fig. 101).

To the beginning of the first millennium B.C., which is Urnfield IV in central Europe, belong a series of eastern Transylvanian hoards: those of St. Gheorghe-Pădureni, district of Mureş; Bancu, district of Ciuc; Zagon-Ceremuş, Malnaş, Zagon-Metchegy, and Belini, district of Trei-Scaune, and others (Nestor, 1933b; figs, *23-28*). They include socketed celts, spearheads, tanged and hooked sickles, knives, beaten bronze cups of Jenišovice type, T-handled cauldrons, and horse gear which are known from many large

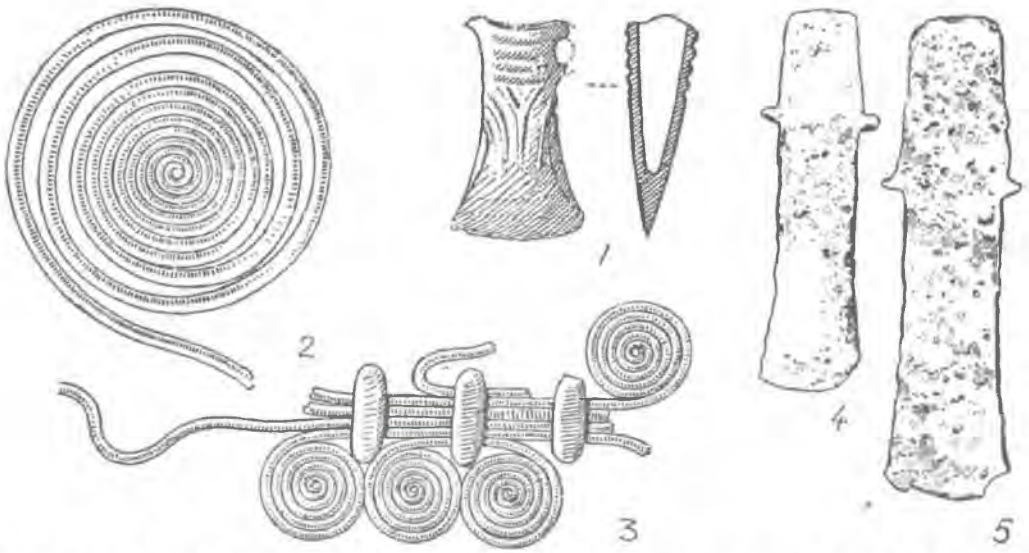


FIG. 159. The hoard of Bîrlad, southern Moldavia. **1**, socketed celt; **2** and **3**, fragments of a fibula of Posamenterie type; **4, 5**, lugged axes. **1-3**, bronze; **4, 5**, iron. Scale: **1** 1/2; **2, 3** 2/3; **4, 5** 1/3. *After* Petrescu-Dîmboviţa, 1958.

hoards of eastern central Europe like that of Niedzieliska in the upper Dniester area (fig. 115) and the Hajdúböszörmény hoard in northern Hungary (fig. 116).

The next group of metal artifacts is typified by the fibulae with eight spirals attached on the bow, the so-called "Posamenterie" type. Posamenterie fibulae are known now from four places in Moldavia and eastern Transylvania: Bîrlad and Rafaila in Moldavia (figs. 159, *2*, *3*; 160, *3*), Cornești and Cincu in

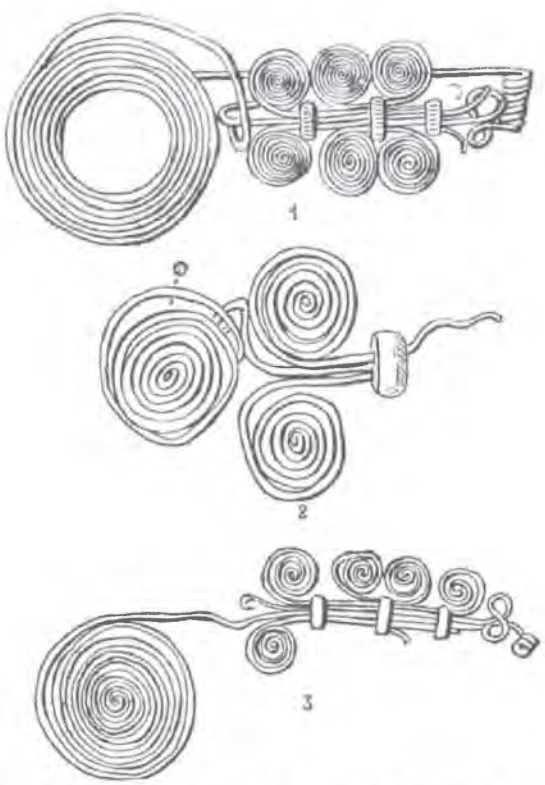


FIG. 160. Bronze fibulae of Posamenterie type from eastern Rumania. **1**, Cornești, central Transylvania; **2**, Cincu, upper Olt basin; **3**, Rafaila, Moldavia. Scale: **1** 1/2; **2** 1/1; **3** 2/5. *After* Petrescu-Dîmboviţa, 1960.

Transylvania (fig. 160, *1*, *2*). The interesting hoard of Bîrlad, southern Moldavia also contained a fibula (fig. 159, *2*, *3*), a short socketed celt (fig. 159, *1*), and two lugged iron axes (fig. 159, *4*, *5*). The finding of all of these objects in the same horizon, at certain intervals in a space of 60 cm, is not doubted (Petrescu-Dîmboviţa, 1958). Hence, this may be about the earliest find of iron in this part of Europe. Such lugged axes of iron are usual in central Europe during the seventh, sixth and fifth centuries B.C., but in Anatolia they start in the fourteenth-thirteenth centuries B.C. The date for the Bîrlad hoard can be worked out through the comparison with bronzes in the Transylvanian and Hungarian hoards. Diagnostic finds are the fibulae of Posamenterie type and the short socketed celts. Their production center lies in the Carpathian area. In northern Hungary a number of such celts and fibulae and their workshops are known (Hampel, 1887, pl. XCVI). The hoard of Aranyos II, district of Borsod in northern Hungary, included very close relatives to the Bîrlad fibula and celt (fig. 243, *5*, *11*), in addition to the other forms current over the whole Carpatho-Transylvanian area and central Europe.

The Bîrlad horizon, which corresponds to the Urnfield V phase in central Europe falls in the late ninth or early eight centuries B.C.

The westward Timber-grave expansion around 1100 B.C. (*see* pp. 569 ff.) interrupted the long relations with the northern Pontic area and the Caucasus. The Monteoru people lost part of their eastern territory: the Timber-grave people occupied the lower Dnieper and the lower Dniester area. Late Timber-grave or "Sabatinivka" elements infiltrated the Monteoru area (Florescu, 1964).

Ties with central Europe continued; probably because of the western influences cremation began to be used, with burials in black polished and fluted urns. Pottery of the end of the Bronze Age and beginning of the Iron Age did not change much in form. Two-handled vases continued to be a dominant form.

The conservatively persisting Monteoru culture was confronted with new developments in the appearance of eastern, chiefly Caucasian, forms brought by the Scythians in the eighth century B.C. The local culture became orientalized although the Monteoru people who very probably were early Dacians did not disappear as their existence in the later periods and Dacian river and place names show. Recent studies of Dacian names in Rumania have shown that they coincide with the distribution of the Monteoru culture (Georgiev, 1960, 1961). The culture which had a gradual development throughout the second millennium B.C., was in the Early Iron Age fertilized by very different cultural elements which on one hand enriched and on the other markedly changed the ancient Monteoru culture.

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V

THE CENTRAL EUROPEAN ÚNĚTICE-TUMULUS-URNFIELD CULTURE

The Únětice, the Tumulus, and the Urnfield complexes, hitherto treated as separate cultures, should actually be regarded as the early, middle and late period, of one central European Bronze Age bloc. This bloc was formed in the early second millennium B.C., developed vigorous metallurgical centers in the Early Bronze Age (from the eighteenth to the fifteenth centuries B.C.) expanded over a large expanse of central and eastern central Europe toward the end of the fifteenth century B.C. or around 1400 B.C. and finally, after the adoption of cremation as a form of burial, became an "Urnfield" culture. The early Urnfield people at the end of the thirteenth century B.C. began a great expansion movement to the Apennine and the Balkan peninsulas and to the eastern Mediterranean. After 1400 B.C., the influence of the central European culture reached all Europe with the exception of Russia proper and the far north.

This central European culture was formed, flourished, expanded and gave birth to local cultures throughout the Bronze Age. The whole period occupies over 1000 years which may be subdivided into the following main periods:

1. *The Únětice period*
 a. Early, *ca.* 1800 to *ca.* 1650 B.C.
 b. Classical, *ca.* 1650 to *ca.* 1550 B.C.
 c. Late, *ca.* 1550 to *ca.* 1450 B.C.

2. *The Tumulus period*
 a. Expansion to eastern central Europe. Early Tumulus or Koszider phase, *ca.* 1450 to 1375/1350 B.C.
 b. Middle Tumulus or Třebivlice phase, middle of the fourteenth century B.C.
 c. Late Tumulus or Houštka phase, from the end of the fourteenth century to *ca.* 1250 B.C.

3. *The Urnfield period*
 a. Early Urnfield:
 I. *ca.* 1250 to the beginning of the 12th century B.C. Expansion to the Apennine Peninsula, Greece, Anatolia and the East Mediterranean area.
 II. From the beginning to the late twelfth century B.C.
 b. Late Urnfield:
 III. From the end of the twelfth century B.C. to *ca.* 1000 B.C.
 IV. *Ca.* 1000 B.C. to *ca.* 850 B.C.
 V. *Ca.* 850 B.C. to the end of the eighth century B.C.

The same is given in tabular form below in comparison with the cultures in Greece (Table II A). A detailed chronological chart of the Únětice-Tumulus-Urnfield culture (Table II B) gives all the phases examined in the chapter on chronology with reference to type sites and other important sites illustrated in the text and in plates.

TABLE IIA

General chronological table of the Únětice-Tumulus-Urnfield culture in comparison with cultures in Greece

Approximate dates	*General period*	*Únětice-Tumulus-Urnfield culture*		*Greece*
ca. 750 B. C.				
			V	Geometric
			IV	Protogeometric
	LATE	URNFIELD		
			III	Sub-Mycenaean
	BRONZE AGE	PERIOD		
			II	Late Helladic III C
			I	Late Helladic III B
ca. 1250 B. C.				
			late	
	MIDDLE	TUMULUS		
			middle	Late Helladic III A
	BRONZE AGE	PERIOD		
			early	
ca. 1450 B. C.				
			late	Late Helladic II
	EARLY	ÚNĚTICE		Late Helladic I
			classical	
	BRONZE AGE	PERIOD		
			early	Middle Helladic
ca. 1800 B. C.				

TABLE IIB

A detailed chronological chart

1. *Únětice Period*

Dates	*Phases*	*Type sites*	*Other sites*
ca. 1450 B. C.			
	LATE ÚNĚTICE	Nitrianski Hrádok (pls. 10 and 11)	Ceszewo (pl. 45) Matuškovo (fig. 148) Neumetěly (fig. 179) Kamýk and Slaný (pl. 46).
ca. 1550 B. C.			
	CLASSICAL ÚNĚTICE	Únětice (fig. 176)	Leubing (fig. 173) Helmsdorf (fig. 170, *C*) Łęki Małe (fig. 174) Wąsosz (fig. 17) Granowo (pl. 42, *A*; fig. 24)
ca. 1650 B. C.			
	EARLY ÚNĚTICE	Straubing (figs. 163 and 164)	Vyčapy-Opatovce (pl. 3; fig. 10) Niederrussbach (figs. 162 *A* and *B*) Neudorf (pl. 39) Gemeinlebarn (fig. 7) Siedlce (fig. 11)
ca. 1800 B. C.			

2. *The Tumulus Period*

Dates	*Phases*	*Type sites*	*Other sites*
ca. 1250 B.C.			
	LATE TUMULUS	Houštka (fig. 45)	Hájek (fig. 193) Schwarza (pls. 52 and 54) Streufdorf (pl. 53) Pitten (pl. 55) Wimsbach (pl. 56) Maisbirnbaum (pl. 57)
1325/1300 B.C.			
	MIDDLE TUMULUS	Třebivlice (fig. 40)	Zájta (fig. 39) Smolenice (fig. 41) Malnice (pl. 15)
1375/1350 B.C.			
	EARLY TUMULUS	Koszider (fig. 32, pl. 14) Proto-Koszider (or Post-Mad'arovce)	Sv. Peter (fig. 33) Tărgu-Mureş (fig. 34) Sauerbrunn (fig. 38) Smedrová (pl. 48) Majcichov (fig. 184)
ca. 1450 B.C.			

3. *The Urnfield Period*

Dates	*Phases*	*Type sites*	*Other sites*
ca. 750 B.C.			
	V	Velika Gorica (fig. 117, *1-8*)	Klentnice (fig. 237) Zsujta (fig. 242 *A-C*) Krekhov (fig. 319) Vyšný Sliač (pl. 78) Komjátna (pl. 64)
ca. 850 B.C.			
	IV	Jenišovice (pl. 23 and fig. 112)	Złotoria (fig. 113) Biskupice (fig. 114) Hajdu-böszörmény (fig. 116)
ca. 1000 B.C.			
	III	Dresden-Dobritz (fig. 109)	Wollmesheim (fig. 108) Hart (fig. 111) Schweinert (figs. 238 *A* and *B*) Žatec (pl. 68, *1-4*)
Late 12th century B. C.			
	II	Velatice (figs. 217 A and 217 B)	Očkov (figs. 219 and 220; pl. 63) Suseni (fig. 85) Czarnowo and Spindlersfeld (fig. 86) Uioara de Sus (figs. 87-89) Branka (fig. 91) Weissig (figs. 223 and 224) Riegsee, Etting, Illmitz (fig. 84)
Beginning of the 12th century B. C.			
	I	Čaka (fig. 214, pls. 21 and 22)	Blučina-Cezavy (fig. 76) Sajó-Gömör (fig. 75) Unter-Radl (fig. 215) Tenja (figs. 216 and 217) Miejsce and Cosswig (fig. 83) Gross-Mugl (fig. 78)
ca. 1250 B. C.			



FIG. 161. Distribution of the Early Bronze Age Unětice complex with indications of early, classical, and late Unětice sites mentioned in the text (triangles). In addition to the central German, Bohemian, and Silesian Únětice culture, this distribution includes the Adlerberg group in the upper Rhine area, and its successors; the Straubing group on the upper Danube and in Bavaria and its successors; the Veterov group in Moravia (between Brno, Znojmo, Vienna, and the Morava Valley); and the Maďarovce-Wieselburg/Gáta group in the middle Danubian plain and between the Morava and Hron rivers in western Slovakia.

Key to Fig. 161:

1. Nitrianski Hrádok habitation site
2. Výčapy-Opatovce cemetery
3. Velký Grob cemetery
4. Abraham cemetery
5. Matuškovo cemetery
6. Veselé habitation site
7. Majcichov cemetery
8. Gáta cemetery
9. a) Niederrussbach cemetery; b) Ebersdorf hoard
10. Böheimkirchen cemetery
11. a) Schleinbach cemetery; b) Roggendorf cemetery; c) Neudorf hoard; d) Pfaffstätten hoard
12. Gross-Mugl habitation site
13. Gemeinlebarn cemetery
14. Věteřov habitation site
15. Cezavy (Blučina) fortified habitation site
16. Bratčice cemetery
17. Bedřichovice cemetery
18. Kroměříž (Hradisko) habitation site
19. Straubing cemetery
20. Těšinov cemetery
21. Protivín cemetery
22. Kamýk cemetery
23. Neumětely cemetery
24. Brandysek cemetery
25. Slaný cemetery
26. Březno cemetery
27. Postoloprty habitation site
28. Polepy cemetery
29. Brodce cemetery
30. Čejetičky cemetery
31. Neunheiligen hoard
32. Leubingen cemetery
33. Schkopau hoard
34. Naumburg hoard
35. Dieskau hoards
36. Halle-Kanena hoard
37. Kläden hoard
38. Grossschwechten hoard
39. Kiebitz hoard
40. Helmsdorf cemetery
41. Röderau hoard
42. Hoyerswerda hoard
43. Birkau hoard
44. Kuttlau hoard
45. Guhlau hoard
46. Gurkau hoard
47. Schwarmitz cemetery
48. Beitzsch hoard or cemetery
49. Falkenwalde cemetery
50. Stubbendorf hoard
51. Hitzdorf hoard
52. Grobia cemetery
53. Granowo hoard
54. Łęki Małe cemetery
55. Środa cemetery
56. Przysieka Polska hoard
57. Oborniki hoard
58. Wąsosz hoard
59. Wojcieszyn hoard
60. Inowrocław hoard
61. Marszowic (Marschwitz) cemetery
62. Oroszvár cemetery
63. Singen cemetery
64. Adlerberg cemetery
65. Wahliz cemetery
66. Menz cemetery
67. Nohra cemetery
68. Buchholz cemetery
69. Siedlce (Zedlitz) hoard

Index to Fig. 161:

Abraham – 4
Adlerberg – 64
Bedřichovice – 17
Beitzsch – 48
Birkau – 43
Boheimkirchen – 10
Brandysek – 24
Bratčice – 16
Březno – 26
Brodce – 29
Buchholz – 68
Čejetičky – 30
Cezavy (Blučina) – 15
Dieskau – 35
Ebersdorf – 96
Falkenwalde – 49
Gáta – 8
Gemeinlebarn – 13
Granowo – 53
Grobia – 52
Grossmugl – 12
Grossschwechten – 38
Guhlau – 45
Gurkau – 46
Halle-Kanena – 36
Helmsdorf – 40
Hitzdorf – 51
Hoyerswerda – 42
Inowrocław – 60
Kamýk – 22
Kiebitz – 39
Kläden – 37
Kroměříž (Hradisko) – 18
Kuttlau – 44
Łęki Małe – 54
Leubingen – 32
Majcichov – 7
Marszowic (Marschwitz) – 61
Matuškovo – 5
Menz – 66
Naumburg – 34
Neudorf – 11c
Neumětely – 23
Neunheiligen – 31
Niederrussbach – 9
Nitrianski Hrádok – 1
Nohra – 67
Oborniki – 57
Oroszvár – 62
Pfaffstätten – 11d
Polepy – 28
Postoloprty – 27
Protivín – 21
Przysieka Polska – 56
Röderau – 41
Roggendorf – 11b
Schkopau – 33
Schleinbach – 11a
Schwarmitz – 47
Siedlce (Zedliz) – 69
Singen – 63
Slaný – 25
Środa – 55
Straubing – 19
Stubbendorf – 50
Těšinov – 20
Velký Grob – 3
Veselé – 6
Věteřov – 14
Výčapy-Opatovce – 2
Wahliz – 65
Wąsosz – 58
Wojcieszyn – 59

1. *The Únětice Period, ca. 1800 B.C. – ca. 1450 B.C.*

Are the Únětice people the heirs of the Kurgan people? At the time of the Kurgan expansion, the southern branch of the Funnel Beaker culture extended as far as Bohemia, Moravia, lower Austria, northwestern Hungary, southern Poland, and the northwestern corner of the western Ukraine. Centuries elapsed before new cultural groupings were formed through a process of hybridization with local elements. The Corded Pottery group in Saxo-Thuringia, western Poland, western Czechoslovakia, and Austria north of the Alps was one such local offspring of the Kurgan culture. The two or three phases of Corded culture in central Europe recognizable from stratigraphy and typology, indicate that it existed probably for at least 300 years before the true Bronze Age. The social structure, religion, burial rites, settlement pattern, and architecture of the Corded culture as well as of its successor, the Únětice culture, are conspicuously eastern in character.

The Corded people and their heirs in the Early Bronze Age were exposed to outside influences. The Bell Beaker culture of western origin, rivalled the influence of the Corded culture in Bohemia, Moravia, and southern Poland around 2000 B.C. The Bell Beakers soon disappeared, but their culture had a lasting effect on the early Únětice people. Other influences came from the Nagyrév and Pecica people who occupied the middle Danube and Tisza basins, and the Vučedol in western Hungary. Through prolonged commercial contacts with these people the early Ünéticians absorbed many southern elements. Pottery, for instance, changed so much that some scholars tend to regard the whole Únětice culture as "Danubian".

The Ünéticians continued the Kurgan economy. They were predominantly stockbreeders, raising sheep, cattle, pigs, and horses. Meat and milk products were important means of subsistence. Pottery strainers appear from the earliest Únětice phase and onward. They held domestic animals in great esteem, particularly the horse and ox. Bridled horses are evidenced from the classical Únětice phase. Cattle bones appear in graves of all phases. Engravings of oxen and wagons on stone cist slabs of the Corded period (at Züschen in central Germany) indirectly indicate that wagons drawn by oxen were used by the Ünéticians and their successors.

Wheat grains of many kinds (Emmer, Einkorn and spelt) are found in habitation sites. Hoe farming apparently continued as during the Corded period, but plough may have been used alongside. We may surmise that a wooden plough drawn by oxen as it is known from the Val Camonica rock engravings in northern Italy was used. In exceptional cases, however, a wooden plough could have had stone ploughshares since some of the Únětician "hoes" are of enormous size. In the royal tomb at Leubingen, mentioned below, there was discovered an implement of serpentine diagonally perforated, 30 cm in length. Its size is certainly too large for a hoe. The material of which it was made and its placement in a chieftain's tomb bespeak its great value. The invention of a bronze sickle also has contributed to the progress in agriculture. The earliest specimen dates from the early Únětice phase (find of Bennewitz in the district of Saale, central Germany: Otto, 1955, pp. 88-89).

Textile industry is indicated by great numbers of clay whorls and loom-weights in habitation sites. At Hradčany near Prostějov in Bohemia the remains of a burnt vertical loom with over 100 loom-weights were discovered (Červinka, 1946, p. 141). Some Únětician graves have yielded fragments of woolen cloth woven together with linen threads.

The rise of metallurgy produced a surplus of means of subsistence and it was the basic factor for changes in economy. The Ünéticians controlled the central European copper sources and created a unique metal culture. Located in the center of Europe they developed a vital trade in bronze, amber and gold across the European continent, connecting the Baltic area with the British Isles and Mycenaean Greece.

In the early Únětice stage their explorations concentrated on the western Carpathians, as is shown by spectroanalysis of necklets or ingot-torques (Pittioni, 1959, p. 95) and by the concentration of early

Únětice hoards and rich graves in western Slovakia and lower Austria. Junghans and Sangmeister, who are engaged in large-scale metallurgical investigations, have discerned a separate group of copper objects with the same composition. This is their group C_2, and it is presumed that to it belong the copper objects from the Carpathians. At the same time, copper from Erzgebirge and Mansfelder Revier in central Germany, and perhaps from the Hardt mountains of western Germany was also being used; from these sites came copper objects with a somewhat different composition which are labeled group A and group B_2. The same and a few other sources of copper were used during the classical Únětice period, but during the end of the classical and the later Únětice period – the sixteenth century B.C. – remarkable changes in metallurgy occurred. Spectrographical analyses show a totally different composition; for the first time tin-bronzes appear, some containing up to 10 per cent of tin. It is presumed that the sources of oxydical or carbonic copper ore used heretofore (which produced the objects of the A, B_2, and C_2 groups) were exhausted by the sixteenth century, and that only supplies of sulphidic ores remained. In order to make use of them it was necessary to dig mines and to find new ways of processing. The copper from sulphidic ore contains a special quantity of nickle which is a characteristic of late Únětician bronzes (based on information from E. Sangmeister, 1962).

a. *Early Únětice ca. 1800 B.C. – ca. 1650 B.C.*

This is a transitional stage between the Corded Pottery culture and the classical Únětice period during which were originated the forms which we accept as "Únětician". Bell Beaker, early Pecica, early Nagyrév, Hatvan, and Vučedol elements combined to transform the Corded pottery style. North of the middle Danube, in western Slovakia, Moravia, and lower Austria, new forms were born and slowly spread northward. The biconical mug with handle appeared; it was to remain a distinctive form in Únětician ceramic art (pl. 3, *15*, *16*; 38, *1*, *2*). Some forms, like one-handled beakers and bowls, some of which stand on four feet, come chiefly from the Bell Beaker style. Incrusted decoration comes from the Vučedol phase of the Incrusted Pottery culture in western Hungary. The pear-shaped jugs (pl. 2, *2*) originated in the early Nagyrév group of eastern Hungary. Yet the cord decoration or incisions which appear on some vases indicate the continuity of purely corded elements (pl. 38, *3*, *4*). The changes that occurred were due to commercial contacts and the rapid growth of metallurgy. The focus of this industry was in the western Carpathian mountains.

There are many names for this period. "Proto-Únětice" has been used without much consistency. It is usually applied only to the culture in Bohemia and Moravia. The western, southern, eastern, and northern parts of the same culture have been given different names, which makes it appear as if seven or eight different cultures existed in this period. The group in the Oder basin was called the Marschwitz in German or Marszowic in Polish; the western Slovakian group: Nitra; the northwestern Hungarian and lower Austrian group south of Vienna: Wieselburg in German or Gáta in Hungarian; the group west of Vienna along the Danube: Unterwölbling; the group in Bavaria south of the Danube: Straubing; the culture in the Tyrol: the Early Bronze Age of upper Austria; and the group on the upper Rhine: Adlerberg. All of these names designate local variants or groupings of one growing culture. It is no wonder that we find some differences in pottery forms since this period was a formative one. At least four Chalcolithic pottery styles, and numerous influences from southern neighbors were now melting in the Únětician pot. In certain areas Bell Beaker influences were stronger, such as in central and southern Germany and in western Czechoslavakia. In other areas southern influences predominated, as seen in the Nitra and Gáta or Wieselburg groups of western Slovakia, northwestern Hungary, and lower Austria. The Gáta or Wieselburg pottery typically consisted of vases with one or two high or pronounced handles reminiscent of the late Baden and early Pecica styles (Pittioni, 1954, figs. 213-23). In the western part such handles do not appear. In a broad sense, however, the culture between the upper

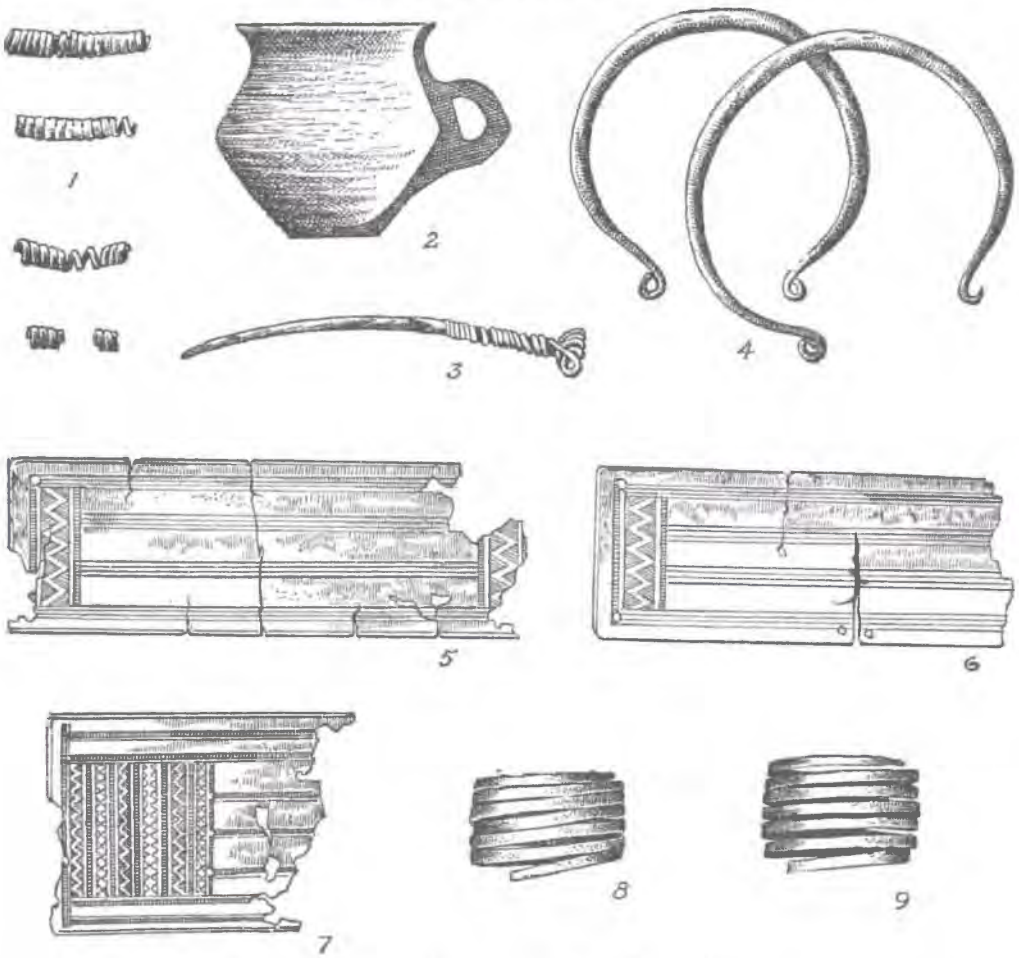


FIG. 162 A. Early Únětice grave inventory from the cemetery of Niederrussbach, lower Austria. **1,** copper spirals; **2,** mug; **3,** knot-headed pin, 15.7 cm. long; **4,** necklets; **5-7,** cuff-shaped arm-bands (outstretched); **8, 9,** spiral arm-rings. Scale approx. 1/2. *After* Hampl, 1956.

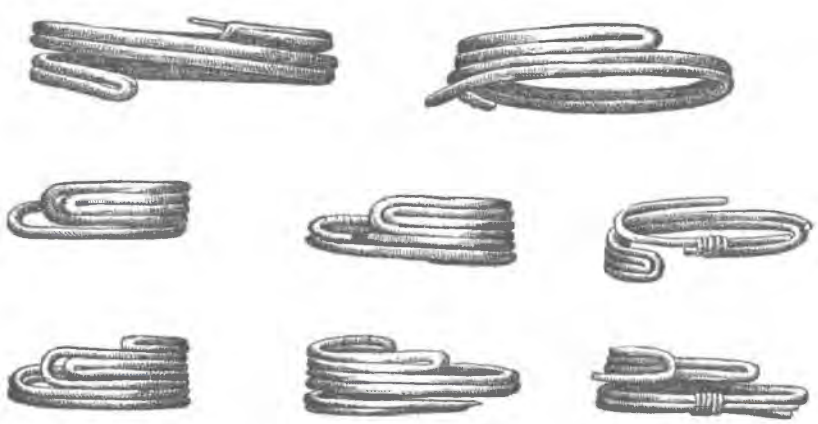


FIG. 162 B. Hair-rings from Niederrussbach (the same grave as shown in fig. 162 A). Scale approx. 1/2. *After* Hampl, 1956.

Rhine and the middle Danube west of Budapest was one unit, with the same burial rites, economy, habitation patterns, and pottery which I call early Únětice. The basic pottery and metal forms which characterize the Únětician period started in this period.

Recent discoveries have been made of large cemeteries, rich in metal finds, some of which had as many as 500 graves, concentrated around Nitra in western Slovakia. They were excavated while this monograph was in preparation. The finds are in the archaeological museum in Nitra; reports on the largest cemeteries, Vyčapy-Opatovce, Abraham, and Vel'ky Grob, have already been published (Točík, 1958; Chropovský, 1960).

The other concentration of sites with very rich inventories of copper artifacts related to those of the Nitra group is east of the Morava River, north of Vienna, in lower Austria and Moravia. This region contains the outstanding cemeteries of Niederrussbach (Hampl, 1956), Gemeinlebarn (Szombathy, 1929), Roggendorf, the hoards of Neudorf, Pfaffstätten (finds of the latter three are in the museum of Eggenburg), Ebersdorf near Mistelbach (finds in Naturhistorisches Museum, Vienna), Peigarten (in the museum of Hollabrunn), and others. Farther to the west, similar sites were found along the Danube, between Linz and Passau, in Bavaria around Straubing south of the Danube (Hundt, 1958), in southwestern Germany in Singen, north of Bodensee, and around Adlerberg on the upper Rhine. Metal types in this rather long belt along the Danube between southwestern Germany and western Slovakia show great stylistic similarity; many artifacts are identical in form and in decoration. Their peculiar distribution along the upper Danube and spectroanalytical tests point to a production center in the western Carpathians.

In addition to the upper Danube basin and the western Carpathian area, copper artifacts spread through Moravia to Bohemia and up the Oder River to Silesia (cf. the hoard of Siedlce-Zedlitz, fig. 11) and to Brandenburg (hoard of Berlin-Lichterade: Gandert, 1957). Isolated early Únětice metal objects reached the southern coasts of the Baltic Sea. North of the Carpathians they spread beyond the limits of Únětice habitation, to the upper Vistula area, where they abundantly appear in the graves of the Mierzanowice group (fig. 251), to Volynia (hoard of Stublo, fig. 10) and, in the east, to the Dnieper River (ornaments in the city of Kiev: fig. 304).

A good assortment of the early Únětician copper ornaments, illustrated below, was yielded by one grave from the cemetery of Niederrussbach (fig. 162, *A* and *B*), the hoard of Neudorf (pl. 39), and by one grave from the Straubing-Alburger Hochweg cemetery (figs. 163 and 164). Other collections have already been mentioned in the chapter on chronology, specifically, the finds from the cemeteries of Abraham (pl. 3), Gemeinlebarn (fig. 7), Vyčapy-Opatovce (fig. 10) and the hoard of Siedlce (fig. 11). Their inventories include cylindrical spirals and tubes (figs. 163, *13-17*); double-spiral pendants (fig. 163, *3-9*); circular spiral plates (fig. 163, *10*) and spiralled tutuli (fig. 163, *11*); basket-shaped hair-rings of various proportions (fig. 162, B); pins with large disc heads with rolled cylinders on top, some of which were plain (fig. *4, 5, 7, 8*), and others were embossed in the middle and decorated with concentric bands of striations (pl. 39, *1, 2*), a cross motif of striated bands in the middle (pl. 3, *1*) or with two to four horizontal rows of striated triangles (fig. 10, *1, 3*); large discs with a conically protruding center, ornamented with three or four concentric bands of striations or striated triangles (pl. 39, *3, 4*; fig. 163, *1, 2*); knot-headed or Cypriote pins (fig. 162, *A, 3*; pl. 3, *2*; fig. 7, *4*); necklets made of a round wire with spiralled ends (figs. 162, *A, 4*; pl. 39, *8, 10*) or with knot ends (pl. 39, *7*) and necklets made of two parallel wires joined in several points (pl. 39, *9*); punctured copper plates used for diadems or belts (figs. 163, *30, 31*; fig. 10, *24-26*; fig. 11, *3*); spiral arm-rings (fig. 162, *A, 8, 9*); cuff-shaped armbands, decorated by bands of horizontal incisions, and at the opening, by vertical bands of striated triangles (figs. 162, *A, 5-7*; pl. 39, *11-13*); and earrings with flattened leaf-shaped ends (pl. 3, *11*; figs. 10, *27, 30-33*; 11, *4, 5*). Bracelets were made of round copper wire with tapering ends (like fig. 165, *5*) or of flattened wire with overlapping ends (fig. 10, *28, 29, 35, 36*). Tools and weapons are represented by flanged axes (fig. 11, *2*), short triangular dagger blades with two to four rivets (pl. 3, *10*; figs. 7, *10*; 10, *14, 15*) and tanged dagger

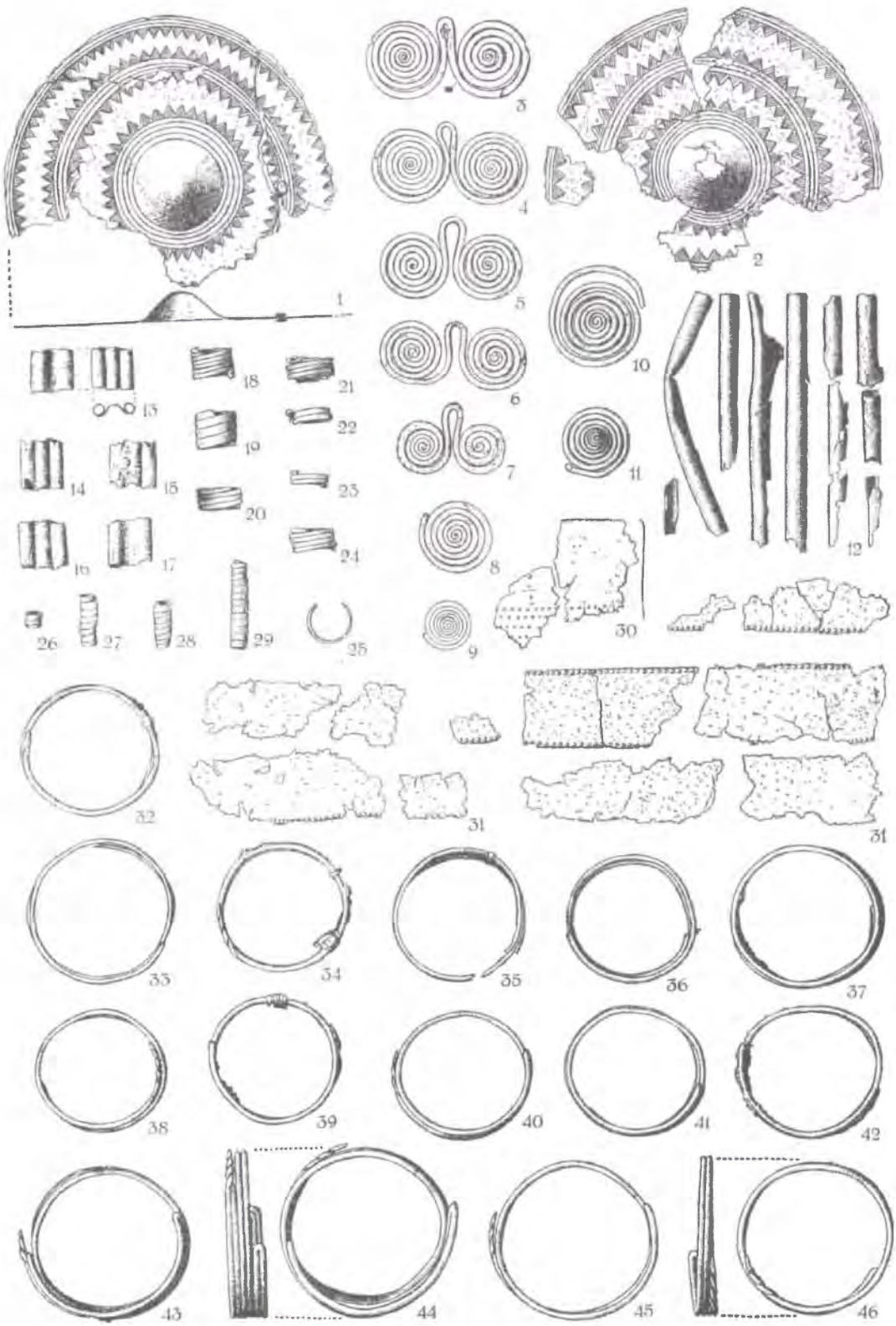


FIG. 163. Copper artifacts from one grave (together with fig. 164). Straubing, Alburger Hochweg. **1, 2,** ornamental plates; **3-9,** double-spiral pendants; **10,** spiral plates; **11,** tutulus-shaped plate; **12,** remains of tubes made of thin copper plate; **13-17,** tubes rolled in spectacle form; **18-25,** finger-rings; **26-29,** spirals; **30, 31,** fragments of copper bands or belts (remains of leather were preserved on the back side of **31**); **32-46,** hair-rings. Scale less than 1/2. *After* Hundt, 1958.

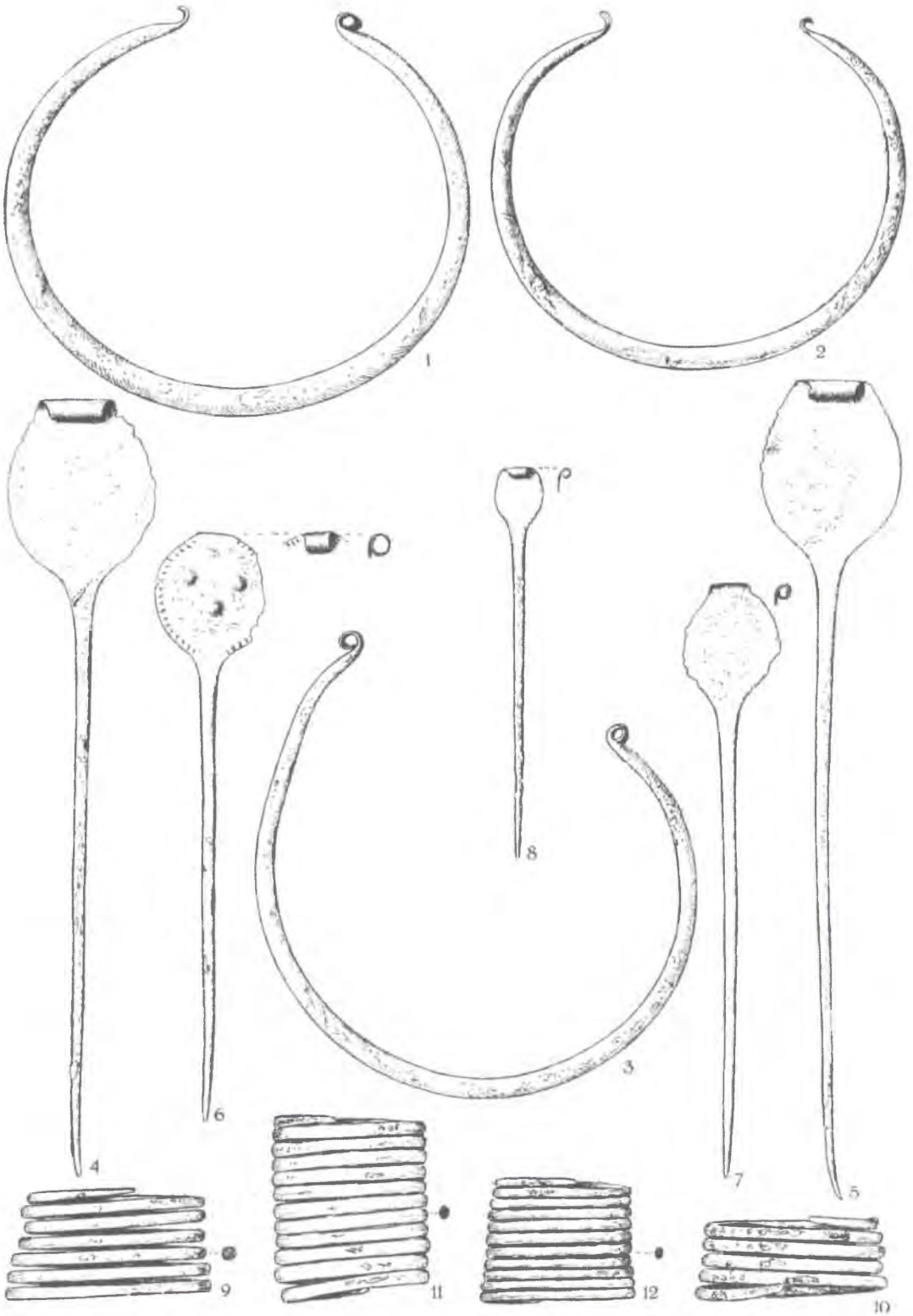


FIG. 164. Copper ornaments from the cemetery of Straubing, Alburger Hochweg (continued from fig. 163). **1-3,** necklets; **4-8,** pins; **9-12,** spiral arm-rings. Scale less than 1/2.
After Hundt, 1958.

blades of Ponto-Caucasian type (pl. 3, *3*, *4*; fig. 10, *16*, *21*, *22*). Bone, amber, and clay rings with perforations for suspension, as well as shell, bone, copper, faïence and amber beads appear associated with these early Unětician copper artifacts.

The variety of copper artifacts was considerably greater than that of the Corded period when only copper spirals, finger-rings, spiral armbands, and daggers occasionally appeared in the rich graves. Early Unětician pins, necklets, tubes, basket-shaped hair-rings, double-spiral pendants or conical ornamental plates give an indication of the strong influence of the Vatya, Nagyrév, and Pecica cultures and ultimately of the Near East at this time. While imitating southern ornaments, the Unětičians created, however, many new variants and entirely new forms as well as their own ornamental motifs. Bands of striated triangles, concentric rings, and crosses that appear on the discs of pins, circular plates, and cuff-shaped arm-bands come from traditional ornamental motifs and symbolism of Kurgan pottery.

Trade in Baltic amber accelerated the spread of copper and gold artifacts to the northern provinces of the Únětice culture. The Oder river was certainly used as an amber route as we know from the amber beads and pendants, which appeared in several hoards and graves in Silesia and Pomerania in association with gold and copper artifacts (cf. the hoard of Siedlce on the upper Oder: fig. 11; the grave of Buchholz east of the lower Oder: fig. 165). The Oder-Warta route leading to the mouth of the Vistula was also apparently used, for a gold basket-shaped earring was found in Gniezno, northwest of Poznań in western Poland, as were early Únětician flanged axes in the lower Vistula area. The distribution of amber and bone rings with a small perforation for suspension between the sources of amber in East Prussia and Lithuania, central Europe and the lower Volga (fig. 5), is evidence of inter-cultural contacts. However, amber was not yet in general use for jewelry as in the classical and late Únětice periods. Its value was essentially symbolic, as we see from the amber ring-shaped amulets and an amber disc found

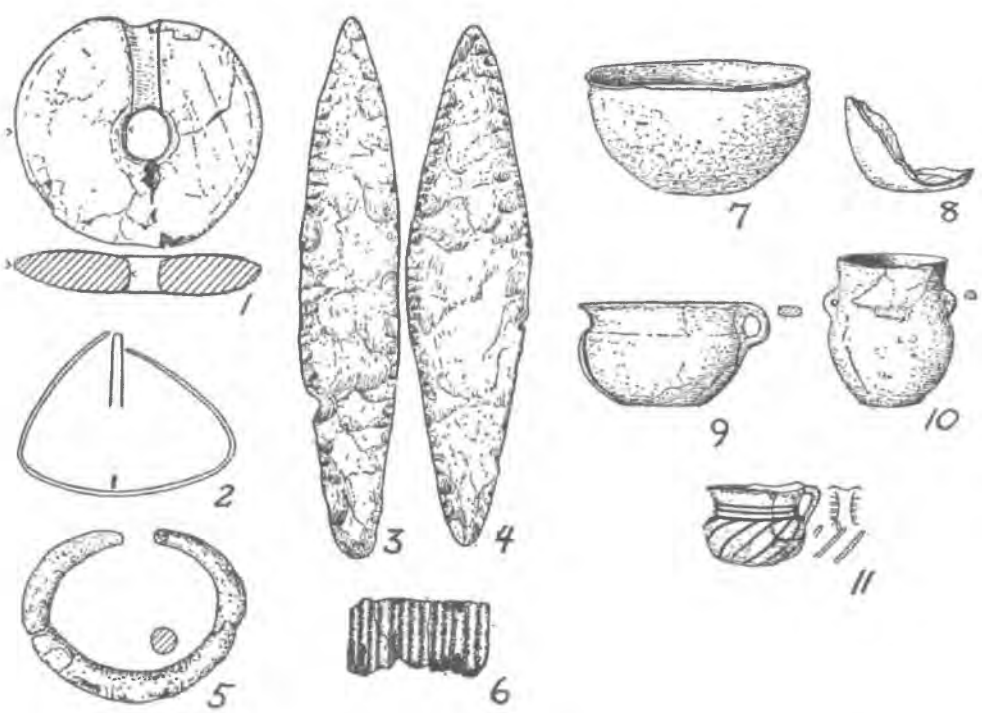


FIG. 165. Inventory of a grave from Buchholz, district of Gryfice (Greifenhagen), on the lower Oder. **1**, amber pendant, 9 cm. in diameter; **2**, gold band, rectangular in cross-section, 22 cm. long; **3**, **4**, flint daggers, 20.4 and 19.7 cm. long respectively; **5**, copper bracelet; **6**, thirteen interconnected copper tubes made of thin copper plate; **7-11**, pots, scale approx. 1/5. *After* Kersten, 1958.

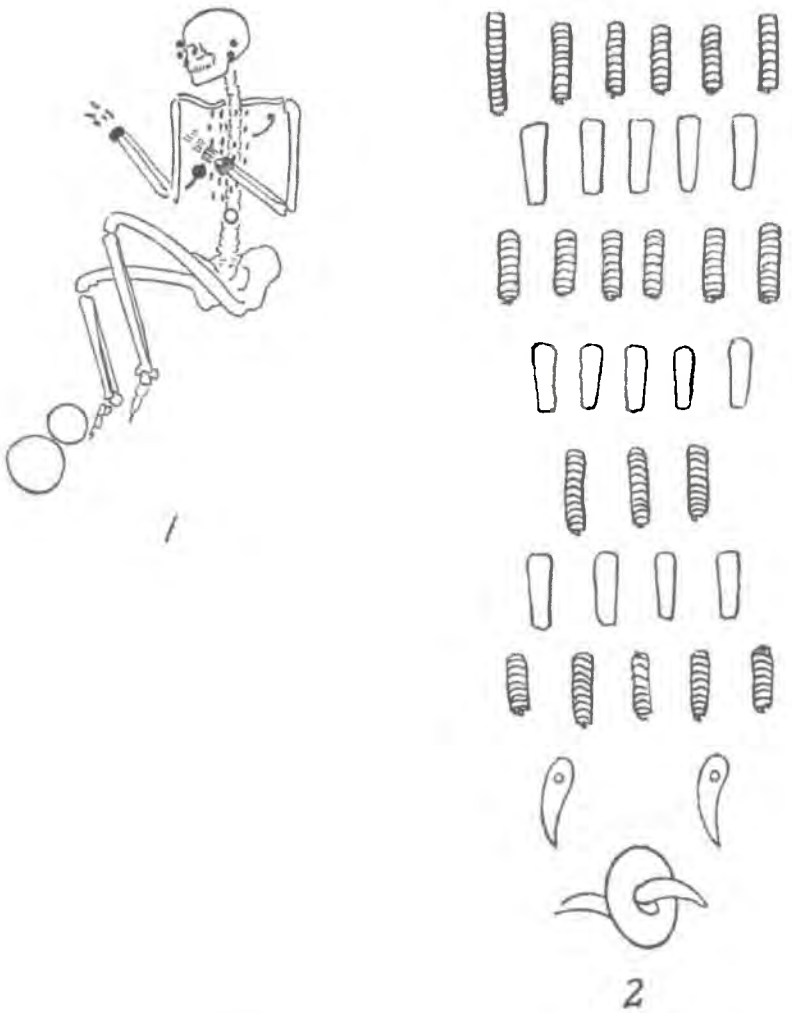


FIG. 166. **1**, female skeleton from grave No. 4 at Oroszvár, northwestern Hungary, furnished with bracelets, pins, hair-rings, pectoral ornament and pots; **2**, pectoral ornament consisting of copper spirals, cylindrical *dentalium* shells, animal tusks, and a faïence disc. *After* Bona, 1960.

in the cemetery of Leopoldsdorf, west of Vienna, which had perforations filled with incisor teeth. Amber beads appeared only in small quantities and were irregularly shaped. The appearance *en masse* of spherical amber beads occurred only in the succeeding period.

North of the Carpathians and the upper Danube, flint was still widely used for tools and weapons, bone for pins, and boar's tusks for necklaces. The grave inventory from Buchholz, the Únětician post farthest to the north near the Baltic Sea, in addition to a gold band (fig. 165, *2*), amber pendant (fig. 165, *1*), a copper bracelet (fig. 165, *5*), an ornament made of copper tubes (fig. 165, *6*), and pots (fig. 165, *7-11*), contained two flint daggers (fig. 165, *3*, *4*). Arrowheads which were the most typical finds in men's graves next to daggers, were only made of flint. They were triangular with a semicircular cutout on the base or had triangular tangs.

Eastern elements can be recognized in women's costume. Bóna has recently brought to our attention the fact that the cylindrical copper spiral and shell beads so frequently found with animal tusks and bone, amber, or faïence discs belonged not to necklaces and not to dress decoration, but were sewn on a thong or a band of linen worn over the dress, so that they could be put on or taken off (Bóna, 1960). His observation was based on the grave finds from Oroszvár in northwestern Hungary which belongs

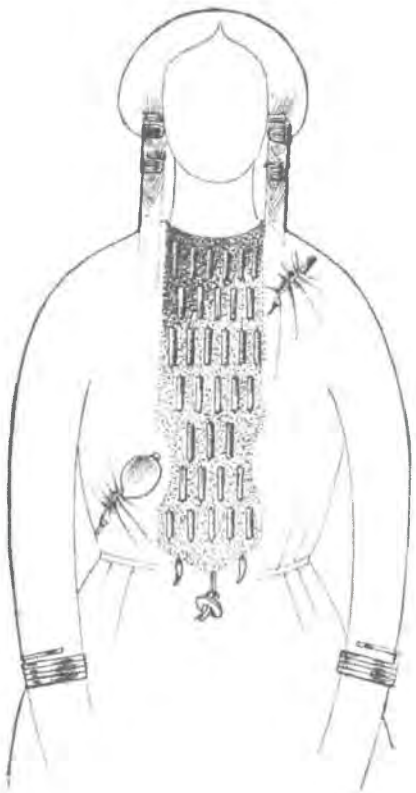


FIG. 167. Reconstruction of the pectoral ornament and the place of other ornaments used according to the finds from grave No. 4 at Oroszvár, northwestern Hungary. *After* Bóna, 1960.

to the Gáta or Wieselburg group of the early Únětice culture. On a woman's skeleton a pectoral ornament was found, consisting of copper spirals and *dentalium* beads in rows below each other, with perforated animal teeth and a faïence disc at the end (fig. 166, *2*). It seems that the cylindrical copper spirals and *dentalium* beads were sewn on a band of linen, and animal teeth and a faïence disc were suspended at the end of the thong. The same woman was furnished with copper bracelets, hair-rings, and pins (fig. 166, *1*). From this kind of grave furnishing it is possible to make a reconstruction of the way ornaments were used (fig. 167). Bóna's illuminating study has shown that this type of costume has clear connections with the east. The earliest parallel can be made with the Neolithic barrow at Nal'chik in the northern central Caucasus. Parallels exist in the Siberian Bronze Age culture of Glazkovo and in the Early Iron Age Scythian culture, where pectoral ornaments are known from Pazyryk. The Oroszvár grave itself yielded many other eastern features. It was under a barrow which contained a family burial, and among the grave goods was the skull of a horse. Pectoral ornaments did not go out of fashion in central Europe very quickly. They are present in the Middle Bronze Age (compare the woman's dress from the Schwarza woman's cemetery in Thuringia: fig. 194, *right*. Bóna holds that the Schwarza woman's spirals were probably not sewn directly on the dress as Feustel thinks, but, as in Oroszvár, on a separate piece of linen). And not only pectoral ornaments, but pins, hair-rings, armbands and bracelets, finger-rings, and necklets continued to be worn throughout the whole Unětician-Tumulus-Urnfield culture.

Men's costumes cannot be easily reconstructed, but we have some evidence from symbolic engravings on the slabs of stone cist graves. A slab covering a cist grave in the cemetery of Dingelstedt near Oschersleben, the district of Halle in central Germany, was engraved on one side with a large ring, a shafted axe, and a belt composed of many vertical strokes and a large clasp in the middle. On the upper

part diagonally across the slab and the ring a broad band was chiseled (Otto, 1955, pp. 85-87). The broad band is interpreted by Otto as a leather band worn over the shoulder and under the arm, on which a large disc was attached. The engraved ring shows diagonal strokes which tempts one to identify it with a copper disc frequent among early Únětician ornaments (cf. fig. 163, *1*, *2*). The belt shown by vertical strokes may indicate that belts were made of copper tubes sewn to the cloth. Such tubes have been found in hoards and graves (fig. 163, *12*). Large belt clasps also found in early Únětician hoards (fig. 11, *3*) can be parallelled to the one engraved in the center of the belt. The engravings on the Dingelstedt slab very probably portray either a male deity or a chieftain with the most important symbols of his power: a large solar disc, an axe, and a belt. The closest analogy for the engravings on the Dingelstedt slab is the anthropomorphic stela from Natalivka near Dnepropetrovsk which belongs to the Catacomb-grave culture (fig. 331, *1*). The Natalivka figure holds a shafted axe and a sceptre and is also girdled with a belt.

Burial rites are perhaps the most striking confirmation of the Kurgan origin of the Únětice culture. The practice of making deep pit-graves with timber huts or timber posts in the corners or, in rare cases, with stone cists, covered with a low earthen barrow, had been inherited from the Kurgan culture. Barrows usually have not survived except in forests, and therefore many of the Únětician graves are mistakenly assumed to be flat-graves. As in the Eurasian steppes, the same barrow was used for a long time. There are known instances where two or three chronologically consecutive graves were found in one barrow superimposed on one another (cf. the Wahlitz barrow, district of Burg in central Germany: Voigt, 1955). Elaborate grave constructions were used in the early Únětice period as were they in the classical period (cf. "Totenhügel" near Menz, district of Burg: Lies, 1955), probably for burial of chieftains. As in the Corded and the steppe barrows, double as well as single graves are found. Double graves of a man and woman, and even more frequently those of an adult and children occur. Skeletons were in the contracted position. Tree-trunk coffins were used in the graves of upper class people (cf. Nohra cemetery, district of Nordhausen, central Germany: Schmidt-Thielbeer, 1955). Typical of all groups of Kurgan origin is the dismemberment of the dead body before burial. This may indicate that the dead were kept unburied for a long time while funeral rites were performed (Beninger, 1931). There are also cases of forced death. In a double grave in the cemetery at Schleinbach near Wolkersdorf north of Vienna, a female skeleton was bound with rope and the skull was smashed with stones (the grave is preserved in the Naturhistorisches Museum in Vienna). The dead were usually buried with their faces looking eastwards or southwards. This is a custom common to the Kurgan culture in the Pontic steppe and to the Corded culture of Europe and can be interpreted as related to the sun cult. Sun symbolism is conspicuous in engraved solar motifs on pins and ornamental plates (figs. 163, *1*, *2*; pl. 3, *1*) and in the use of amber, bone, or faïence discs and ring-shaped pendants. Horse, sheep, goat, boar, and cattle teeth and bones or meat in graves and the incisor teeth used for ornaments indicate the prominent role of these animals in religion.

Measurements of Únětician skulls in Bohemia, Saxony, and Silesia have shown the predominance of the dolichocephalic Corded type closely related to the Kurgan physical type of southern Russia which in literature is labeled the "Nordic Mediterranean", "Mediterranean Proto-European", or "gracile Crômagnoid" type. In the southern regions of Únětician distribution, where intercourse between the Únětician people, the Danubians, and the Bell Beakers has been archaeologically proven, the physical type is also more varied. On the basis of measurements of several hundred skulls from the Early Bronze Age cemetery of Gemeinlebarn in lower Austria, Coon generalized that the crania belong metrically about halfway between "Corded" and "Danubian" types in most cases (Coon, 1939, pp. 163-164). The recent study by Ehgartner of over 200 skulls from the cemetery of Hainburg, 54 km east of Vienna and located in the southeastern corner of the Únětician distribution, finds two dolichocephalic groups: "Nordic-Mediterranean" and Crômagnoid. The "Nordic-Mediterranean" long-heads of the same type as in the cemetery of Gemeinlebarn were predominant, while pure Crômagnoid types were rare. Some



FIG. 168. A schematic reconstruction of the Únetician village based on excavations in Gross Mugl, lower Austria. *After* Beninger, 1941.

brachycephalic planoccipital skulls of Hainburg were of the Bell Beaker type; a variant of the same were brachycephalic skulls with a Cromagnoid face. The flat faces of some skulls are interpreted as a foreign type having nothing to do with the Alpine race, and are thought to be hybrids whose origin has to be looked for in the east (Ehgartner, 1959). Similar results were obtained from the measurements of 67 skulls in Moravia (Jelínek, 1959). The physical type of the people north of the Boden See (cemetery of Singen) was of mixed character, predominately taurid and brachymorph Cromagnoid (Gerhardt, 1964).

The early Únětician village type is also evidence of eastern influence. Although material standards rose, villages remained as small as during the Corded period. One of the systematically excavated villages, the reconstruction of which is shown in figure 168, is Gross-Mugl in lower Austria (Beninger, 1941). Six semisubterranean houses were randomly placed, as were the houses of the Timber-grave culture in southern Russia (cf. fig. 353). Each dwelling had one or two rectangular or bell-shaped pits nearly 2 m deep (fig. 169, *bottom*). The contours of the houses were marked by holes which were evidently for poles which formed the walls and supported the roof (fig. 169, *bottom*). The wickerwork walls daubed with clay were sunk into the ground; only their upper part was above ground level (fig. 169, *top*). In later Únětician phases semisubterranean houses persisted, but the above-ground house type with gabled roofs became more frequent (Hnízdova, 1953; Soudský, 1953).

b. *Classical Únětice, ca. 1650 – ca. 1550 B.C.*

This is the apogee of Únětician culture, marked by great wealth in metal and amber, the intensification of trade, and remarkable growth of local metallurgy.

The classical Únětician deposits overlie those of the Corded Pottery and early Únětice periods. As an example, we may mention here the stratigraphic position of the Únětice royal tomb in the huge burial mound at Helmsdorf in Saxony. It was an extremely rich grave containing gold ornaments including a massive bracelet (fig. 170, *6*), two pins (fig. 170, *1*, *2*), two spiral earrings (fig. 170, *4*, *5*), a spiral (fig. 170, *7*), a bronze chisel (fig. 170, *11*), a diorite axe (fig. 170, *9*), a pottery vase (fig. 170, *8*), and potsherds. The grave lay within a chamber built of wooden beams and was covered with stones (fig. 171, *C*). Below this classical Únětice grave, two graves were found with contracted skeletons equipped with late

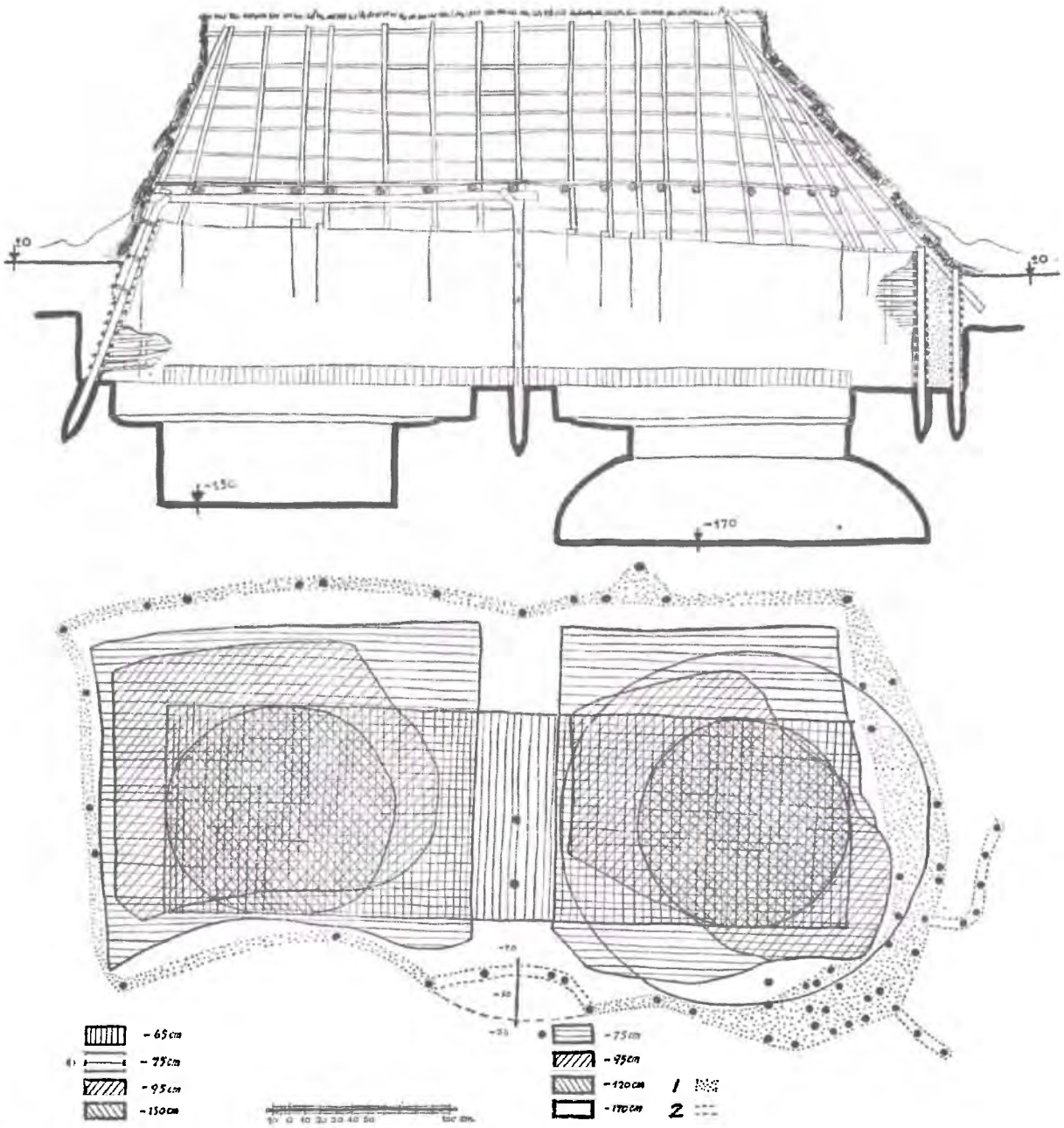


FIG. 169. Plan and a reconstruction of an Unetician semi-subterranean dwelling from the habitation site at Gross-Mugl, lower Austria. **1**, remains of walls made of wickerwork daubed with clay; **2**, daub. *After* Beninger, 1941.

Corded pots (figs. 171, *B*; 170, *B*); and below this lay a stone cist containing an early type of corded vase (figs. 171, *A*; 170, *A*).

Graves like that of Helmsdorf (fig. 171, *C*) with such elaborate construction and exceptional wealthy furnishing must have been built for the most important people of the community. The graves from Leubingen, excavated in 1877 (Höfer, 1906), Niensted, Sömmerda, and several others in Saxony found by eighteenth and nineteenth century excavators (Fischer, 1956, pp. 186-90), and Łęki Małe near Kościan in western Poland, excavated in 1934 and 1953 (Kowiańska-Piaszykowa and Kurnatowski, 1954) are



FIG. 170. Finds of different periods from the Helmsdorf barrow. *A*, corded pot and stone cist from the lowest layer; *B*, late corded pot from one of the cists overlaying *A*; *C*, Early Bronze Age finds from the royal tomb: **1, 2,** gold pins; **3,** gold spiral; **4, 5,** gold hair-rings or earrings; **6,** gold bracelet; **7,** copper dagger blade; **8,** vase; **9,** stone axe; **10,** bronze flanged axe; and **11,** bronze chisel. *After* Grössler, 1907.

other outstanding examples. Large burial mounds, 4 m to 8.5 m high, cover mortuary house built of oak beams supported by an oak trunk and stone boulders (figs. 172, 173). The dead lay extended, which is unusual in the burial customs of Únětice. As the Helmsdorf royal tomb shows, the deceased lay within a treetrunk coffin, which was placed on an oaken platform (fig. 171, *4*). All royal tombs contained a considerable number of gold and bronze ornaments, elaborate vases, flanged axes, daggers, halberds, and chisels of bronze. The old man buried in the mortuary house of the huge Leubingen barrow (fig. 173) was equipped with a pot, a serpentine hoe diagonally perforated, 30 cm long (a plough-share?), a slate wetstone, three triangular bronze dagger blades, two bronze flanged axes, three bronze chisels, and with gold ornaments – an arm-ring, two pins, two hair-rings and a spiral, of the same type as those

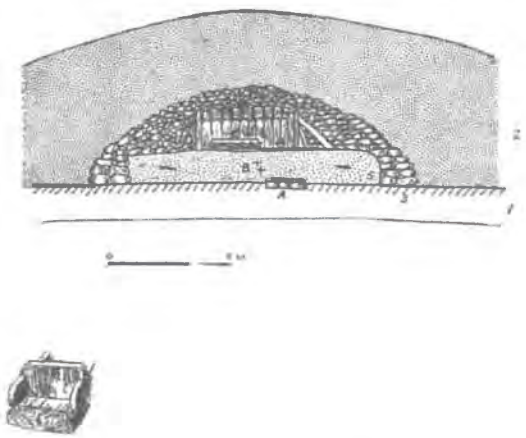


FIG. 171. Chalcolithic and Bronze Age stratigraphy in the barrow of Helmsdorf, Saxony. *A*, stone cist burial containing contracted skeleton and corded pottery; *B*, two graves with late type of corded pottery; *C*, classical Únětice royal tomb. **1,** loess; **2,** earthen barrow; **3,** stone vault covering the timber house with a pitched roof; **4,** bed-like coffin made of oak boards; **5,** 1,40 m. thick layer of ashes. *After* Grössler, 1907.

found in the tomb of Helmsdorf. Across the skeleton rested the corpse of a young person, probably a girl. The mortuary house was piled with head-sized boulders, forming the inside tumulus. Above this was the earthen mound 8.5 m high.

The cemetery at Łęki Małe had 11 burial mounds in 1881; when excavations were undertaken in 1934 and 1953, however, only four were left. The tumuli were arranged in a single row stretching along

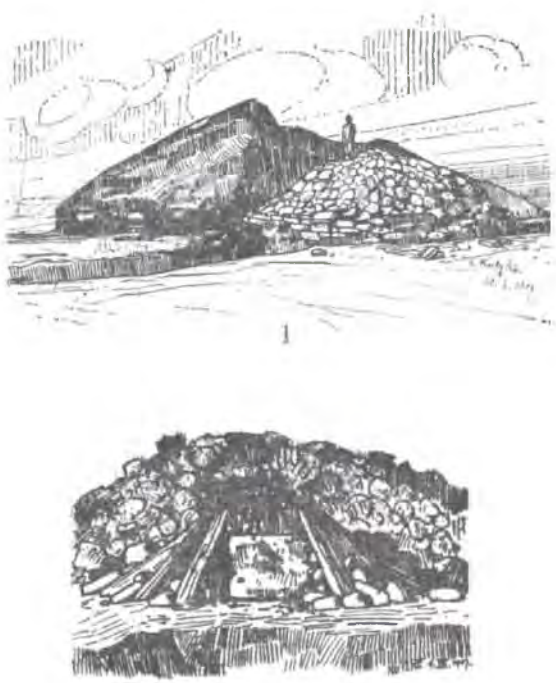


FIG. 172. Royal tumulus at Helmsdorf near Mannsfelder See, Saxony. **1,** stone tumulus after the removal of the upper earth layer of the mound; **2,** timber tomb after the removal of stones.
View from the south side. *After* Grössler, 1907.

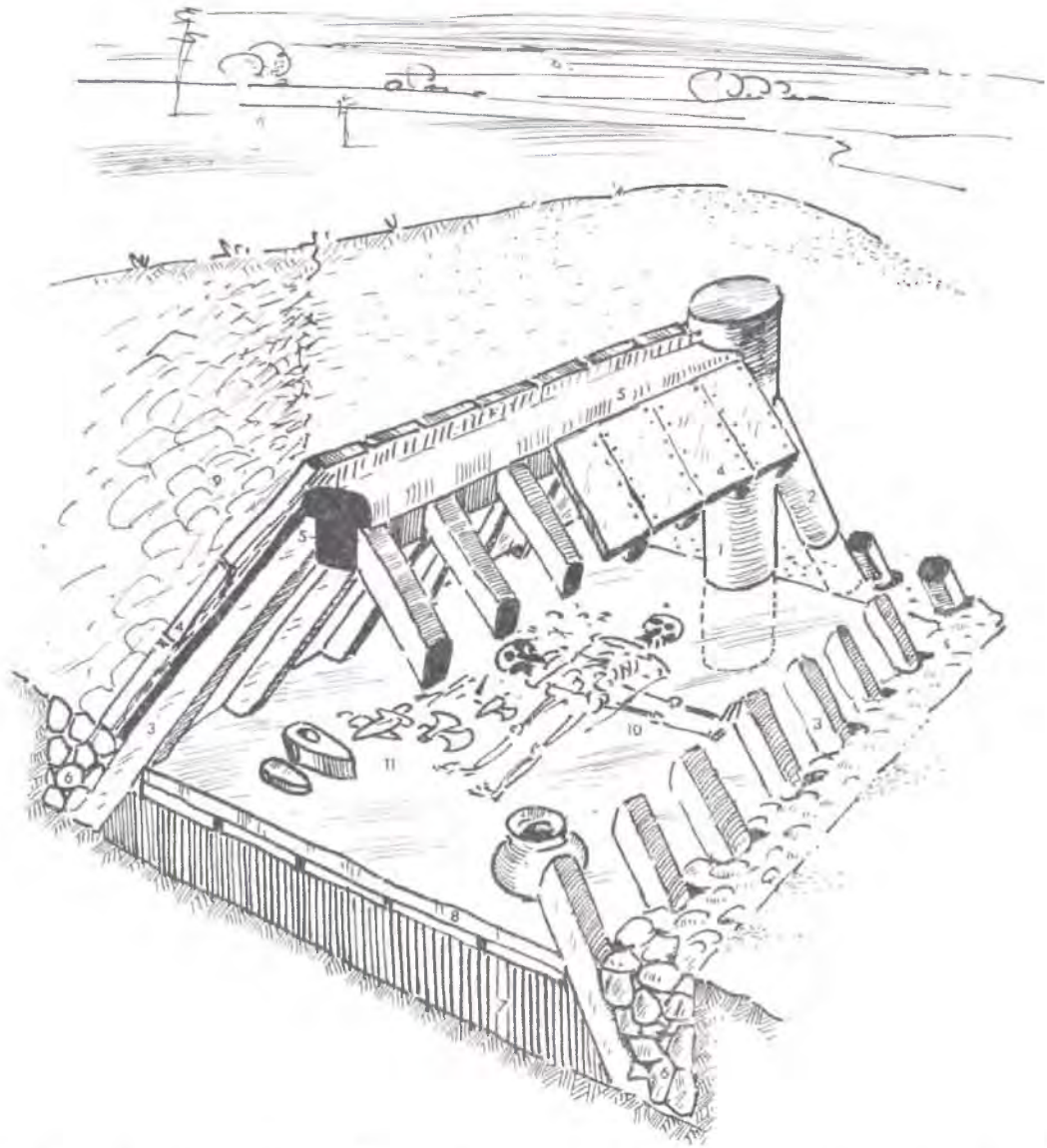


FIG. 173. The royal tomb at Leubingen, Saxony. An axonomatic view (a reconstruction based on plans drawn by Klopfleisch in 1887, published by Höfer, 1906). **1,** vertical timber post, 1.7 m. high and 50 cm. thick, for support of the ridge piece (**5**); **2,** diagonal beams supporting the large timber post; **3,** rafters for roof construction; **4,** planks above the rafters, fastened by wooden nails and covered with a layer of reeds; **5,** ridge piece; **6,** foundation ditch filled with stones; **7,** earthen platform; **8,** floor of wooden planks; **9,** stone mound above the mortuary house; **10,** royal skeleton with a skeleton of a teen age youngster across; **11,** grave goods: huge stone hoe or plough-share, stone chisel, bronze flanged axes, dagger blades, a halberd blade and chisels at the feet and a large vase at the right corner, at the right shoulder gold bracelet, two pins, two hair-rings and a spiral.

the river. This reminds us of the position of burial mounds in southern Russia. Barrow I was systematically excavated. It was 24 m in diameter and 4.5 m high, composed of alternating layers of sand and clay which concealed six stone constructions covering the graves. The richest grave in the center was dug into the virgin soil. The five other graves were either above the ground or in a different level of the mound. The central tomb was built of wooden beams as at Leubingen and Helmsdorf. Above the two distinct stone pavements, amidst wooden (coffin?) remains, rich grave furnishings belonging to two persons, a man and a woman, were discovered. The male grave goods (fig. 174; *A*) surpassed by far those of the female one. The grave contained a flanged axe (fig. 174, *A*; *1*), a dagger blade (fig. 174, *A*; *2*),

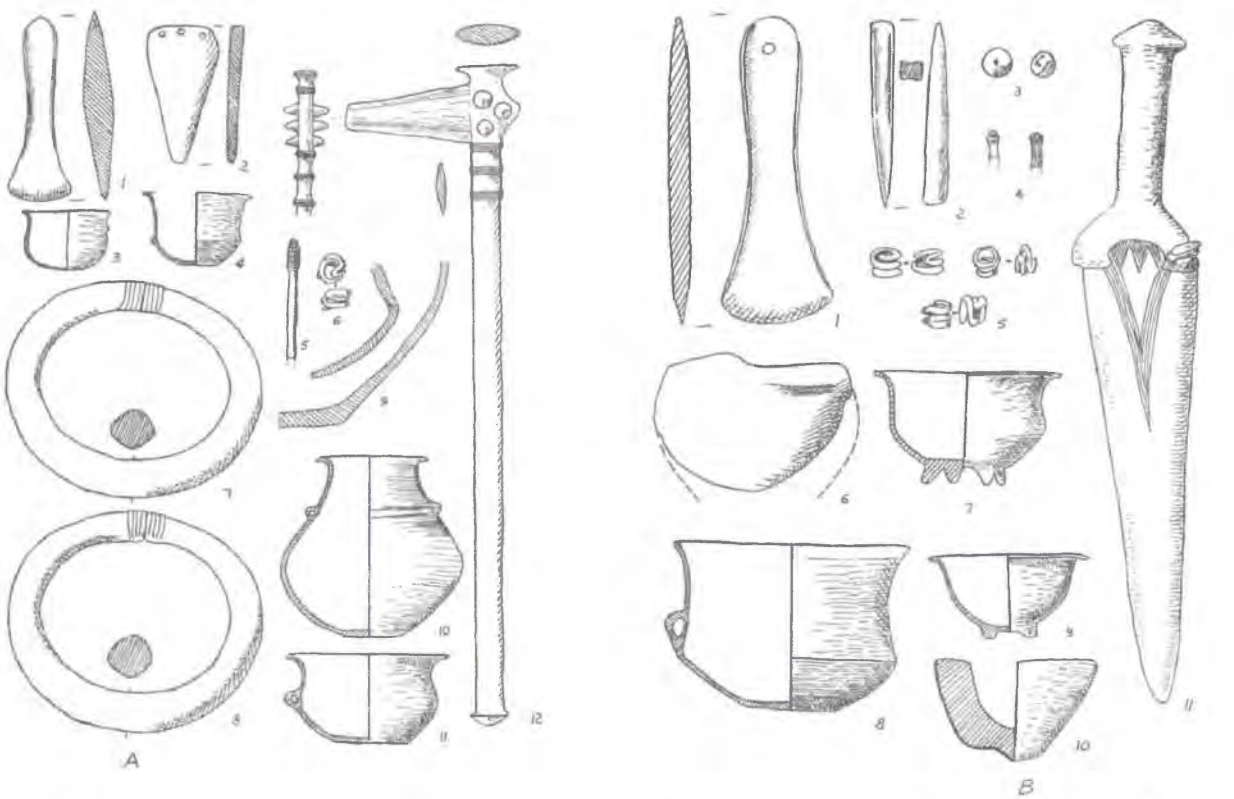


FIG. 174. Inventory from the royal Únětician graves of barrow No. 1 in the cemetery of Łęki Male, western Poland. Grave *A:* **1,** flanged axe; **2,** dagger blade; **3, 4, 10, 11,** pots; **5,** knot-headed pin; **6,** gold spiral or hair-ring; **7, 8,** bracelets; **9,** profiles of large pots; **12,** metal-shafted halberd. Grave *B:* **1,** flanged axe; **2,** chisel; **3,** amber beads; **4,** loop-headed pins; **5,** gold spirals or hair-rings; **6-10,** pots; **11,** bronze-hilted dagger. Scale approx. 1/4.
After Kowianska-Piaszykowa and Kurnatowski, 1954.

a knot-headed pin (fig. 174, *A*; 5), a gold spiral ring (fig. 174 *A*; *6*) and a bronze-shafted halberd (fig. 174, *A*; *12*). The female skeleton was adorned with only two bronze bracelets (fig. 174, *A*; *7, 8*). At the side of the male skeleton two fragments of long bones, presumably human, were found. Five pots were also found in this double grave (four are shown in fig. 174, *A*; *3, 4, 10, 11*). In the western part of the barrow another rich grave was found; it contained a metal-hilted dagger mended with a piece of wire (fig. 174, *B; 11*), a chisel (fig. 174, *B;2*), a flanged axe (fig. 174, *B;1*), fragments of two loop-headed pins (fig. 174, *B; 4*), three gold spirals (fig. 174, *B*; *5*), two amber beads (fig. 174, *B; 3*) and five vases (fig. 174, *B*; *6-10*). The other graves within the stone constructions held either no goods at all or only pots. In the northern part of the barrow a great number of animal bones were found, mostly skulls, belonging to seven horses, seven cows, three pigs, and two sheep.

The ordinary graves of people lay in deep pits under low earthen mounds. During the classical Únětice period, graves were almost entirely built of head-sized boulders usually daubed with clay. These imitations of houses had the shape of an elongated rectangle with rounded corners (pl. 40). One barrow contained two or more graves. The dead were contracted and as a rule lying on the right side, facing south (fig. 175). Single, double, and family graves occur, the family graves containing three to seven skeletons of adults and children lying beside each other or one above the other (Weninger, 1941). Statistics on 14 cemeteries in Moravia have shown that 8-12 per cent of all graves hold multiple burials (Tihelka, 1953a, p. 323). The analysis of Unetician graves in Saxo-Thuringia has shown that multiple burials of three or more individuals were more frequent in the early Únětice than in the classical Únětice period. Only double graves continued to be common (Fischer, 1956, p. 184). In several cases, as in the

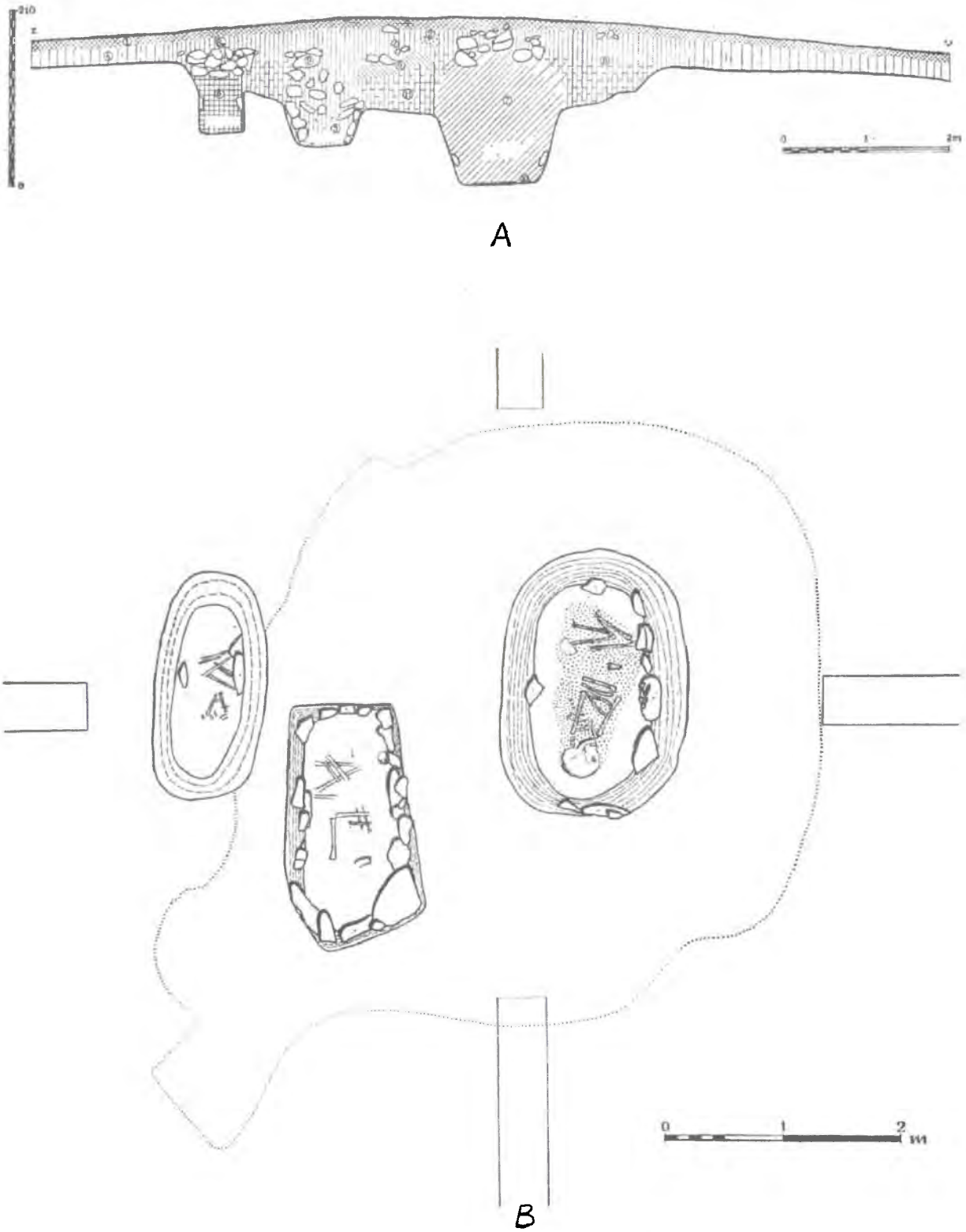


FIG. 175. *A*, cross-section and *B*, plan of a classical Unetice barrow (Tumulus No. 7) of the cemetery of Čejeticky near Mladá Boleslav, Bohemia. *A:* **1,** humus layer; **2,** red ochre deposit; **3,** ochre and grayish brown layer; **4,** grayish ochre layer; **5,** grayish layer; **6,** brown layer; **7,** reddish sand with fragments of chaen and mud; **8,** gray layer; **8*a*,** ochre and gray layer; **9,** stones; **10,** dark layer. *After* Plesl, 1959.

early Únětice period, skeletons have been found with dismembered bones and skulls (Hnízdová, 1955).

The most common grave goods were pots, placed either at the head or at the feet, and bones of cattle, horses, goats, sheep, pigs, and deer probably sacrificed during the funeral rites. A horse grave was found in the cemetery of Gleina, district of Nebra in central Germany (Schulz, 1932). This grave has considerable significance since the horse was bridled. On its skull two cheekpieces made of boar's tusks with double perforations at the ends were found. So far this grave presents the earliest evidence of a bridled horse in central Europe.

The classical Únětice graves and cemeteries constitute a body of material sufficient to substantiate hypotheses on such questions as social structure. The Saale-Unstrut area of central Germany has been recently analysed from this point of view. On the basis of a thorough examination of grave structure and inventories, Otto (1955) has been able to classify the Únětician (in his terminology, "Leubingen") graves into four categories:

1. Chieftains' graves, outstanding for their grave structure and rich equipment. They are unsurpassed by any other grave of a given cemetery. They stand outside the boundaries of the cemetery. Examples: the tombs of Leubingen and Helmsdorf.

2. Very rich male graves, found within the cemetery of a community. Gold objects are found in them in addition to copper or bronze weapons and tools. (To this category may belong the grave of a very rich man in the center of barrow I in the cemetery of Łęki Małe in western Poland: fig. 174, *A*).

3. Rich graves which contain metal artifacts, a chisel, an awl, a dagger and ornaments, but no gold objects and no showy weapons.

4. Poor graves, either unfurnished or equipped only with a few pots.

Mass burials are a separate category. These are either in pits or stone cists; the skeletons are placed in a random fashion. Flint arrowheads or copper awls usually accompany the skeletons. The skulls show injuries. These mass burials are probably rightly interpreted as the graves of sacrificed peoples, perhaps enemies (Otto, 1955, 71).

The occupants of chieftains' graves like those from Leubingen and Helmsdorf are assumed to have been heads of the tribe. The structures required a great deal of labour which had to be recruited from the whole tribe. To remove half of the earthen barrow above the stone vault at Helmsdorf ten workers worked with wagons for four weeks. At Leubingen, the stones piled above the timber house must have been brought from 10 to 30 km away, since there are no stones in the vicinity. Groups of people had to prepare the timber beams, balks and bier. The whole structure was built with utmost care. All this shows that a tribal chieftain was highly revered and loved. He was a member of a rich patriarchal family which dominated the society.

The second category of graves may have belonged to the members of the nobility, the most powerful and influential next to the king. Men of this class could have formed a council, the Indo-European *tauta*, similar to that of the Mycenaean Greeks, the Hittites, the Indo-Iranians, and other Indo-European groups. Otto guesses that the Únětician political system was a military democracy. Chieftains were not tyrants and their power to a certain degree was limited by the council. Their ruling area was not large. Several royal tombs in the Saale area of the same chronological phase may indicate several tribal districts. However, the existence of a hierarchy or confederation among the chieftains is also possible.

The rise of a wealthy upper class during the classical Únětice period no doubt went hand in hand with the growth of metallurgy and trade. Of nearly 500 Únětician hoards the greater part belong to the classical period; graves rich in metal artifacts were no longer confined to the upper Danube and the western Carpathian foothills, but were found all over central Europe.

Central German and Bohemian sources of copper gained importance, as spectroanalytic tests show. The Úněticians exported products from these sources, but they also imported other types of copper from abroad. A busy traffic was carried on between the Únětician culture and the British Isles, from which they obtained copper with a high arsenic content. A deliberate choice of certain copper ores for certain

objects was made. Artifacts of one hoard frequently came from different sources. For instance, the objects analyzed from the famous Dieskau hoards (nos. 2 and 3), in the district of Halle, from the classical Únětice period were made of arsenic-copper (the blades of metal-shafted halberds), of copper with an admixture of silver, arsenic and antimony (double-axes and necklets), and of copper with an admixture of silver, nickel, arsenic, antimony, and tin (bracelets). The massive bracelets contained 2.2-15 per cent tin, 1.5-5 per cent antimony, and 1.4-1.9 silver (Witter and Otto, 1938; Otto and Witter, 1952, tables 13a, 14a, 14b, 16a, 16b). Metal-shafted halberds were usually made of arsenic-copper, whereas the blades of wood-shafted halberds were made of copper with a high percentage (up to 15 per cent) of tin and silver.

In some Bohemian cemeteries, 20 to 45 per cent of the graves contained gold objects (Hájek, 1954, 191). Gold hair-rings or earrings were of various forms, basket-shaped, and with broadening, overlapping ends (fig. 170, *4*, *5*). Rings, beads, neck-rings of thin wire (fig. 17, *17-19*), pins (fig. 170, *1*, *2*) and even dagger blades were sometimes gold, as is shown by a specimen from Inowrocław in western Poland (Knapowska-Mikołajczykowa, 1957, 49, fig. 42). The gold sources lay in Ireland and Bohemia, as types of gold artifacts indicate: the long basket-shaped earrings found in the Oder and lower Vistula basins (fig. 17, *1*) possibly come from Ireland. The same type has been found in Holland and England (fig. 18). Basket-shaped hair-rings, spiral rings, ring-headed pins, and other typically Únětician artifacts are probably local and may come from Bohemian sources of gold around Tešinov.

The classical assemblage of bronze, amber, and gold artifacts is characterized by a series of pins, ring-headed (fig. 176, *1*, *2*), knot-headed (fig. 174, *A*, *5*), loop-headed (fig. 176, *3*, *4*) ,and those with cross-shaped heads with ring ends, also by basket-shaped hair-rings (fig. 176, *6-8*), a great many copper spirals and flattened sperical, axe-shaped, or irregular amber beads used for necklaces (fig. 17, *4-16*, 176, *9*), chains made of tiny copper wire tubes and amber beads (fig. 176, *10*), small conical plates, short triangular daggers (fig. 170, *7*; pl. 41, *5*), flanged axes with narrow edges (fig. 170, *10*; 174, *B*, *1*), chisels (fig. 170, *11*; pl. 41, *1*), and so forth.

Classical Únětice metallurgy is typified by rivetted daggers with a considerably broader edge and a longer body decorated with parallel lines and a row of hanging triangles over the upper part of the blade, and new forms, such as halberds, long and narrow double-axes, and massive *O*- or *C*-shaped bracelets. These objects are well represented in numerous hoards and graves in central Germany, western Poland and Bohemia (figs. 17; 24; pl. 42).

Many of the large hoards in western Poland, Silesia, Bohemia, Brandenburg, and central Germany, such as Wojcieszyn, Wąsosz (fig. 17), Granowo (fig. 24; pl. 42), Horoměřice in Bohemia, Hitzdorf in the Arnswalde district in Brandenburg, Dieskau in the district of Halle, central Germany, and others contain closely related material: metal-hilted daggers, long and narrow double-axes, blades of wooden-shafted halberds (fig. 24, *6*), metal-shafted halberds (fig. 174, *A*, *12*), massive bracelets (fig. 174, *A*; *7*, *8*) and neck-rings (cf. Bohm, 1935, pls. 5, 7; Forssander, 1936, pls. 13, 14; Jahn, 1950, pls. 1-12; Knapowska-Mikołajczykowa, 1957, figs. 25, 26). The same context and the same decorative motifs on dagger and halberd blades establish these hoards as contemporaneous. A chronological relationship can also be seen between the above mentioned hoards and the hoards of Stubbendorf in Mecklenburg, Pile in Skåne, Sweden (Forssander, 1936, pls. 17, 18, 24-26), Falkenwalde near Prenzlau in Brandenburg (Bohm, 1935, pls. 2-4), Łęki Małe (fig. 174), and the finds from Brusy at the mouth of the Vistula (fig. 16).

In this period central German and Bohemian products spread to the East Baltic area, to southern Scandinavia and as far as the British Isles. Gordon Childe and many other archaeologists after him have presumed that metal and amber were diffused by itinerant traders, who traveled in all directions, and that the hundreds of hoards must have been hidden by these traders when they were in danger. Otto, the author of a work on the socio-economic aspects of the Únětice ("Leubingen") culture (1955) has, however, a different opinion. According to him, it is doubtful that in classical Únětician society there was a separate class of traders with exclusive control of trade. Ethnographic parallels show that

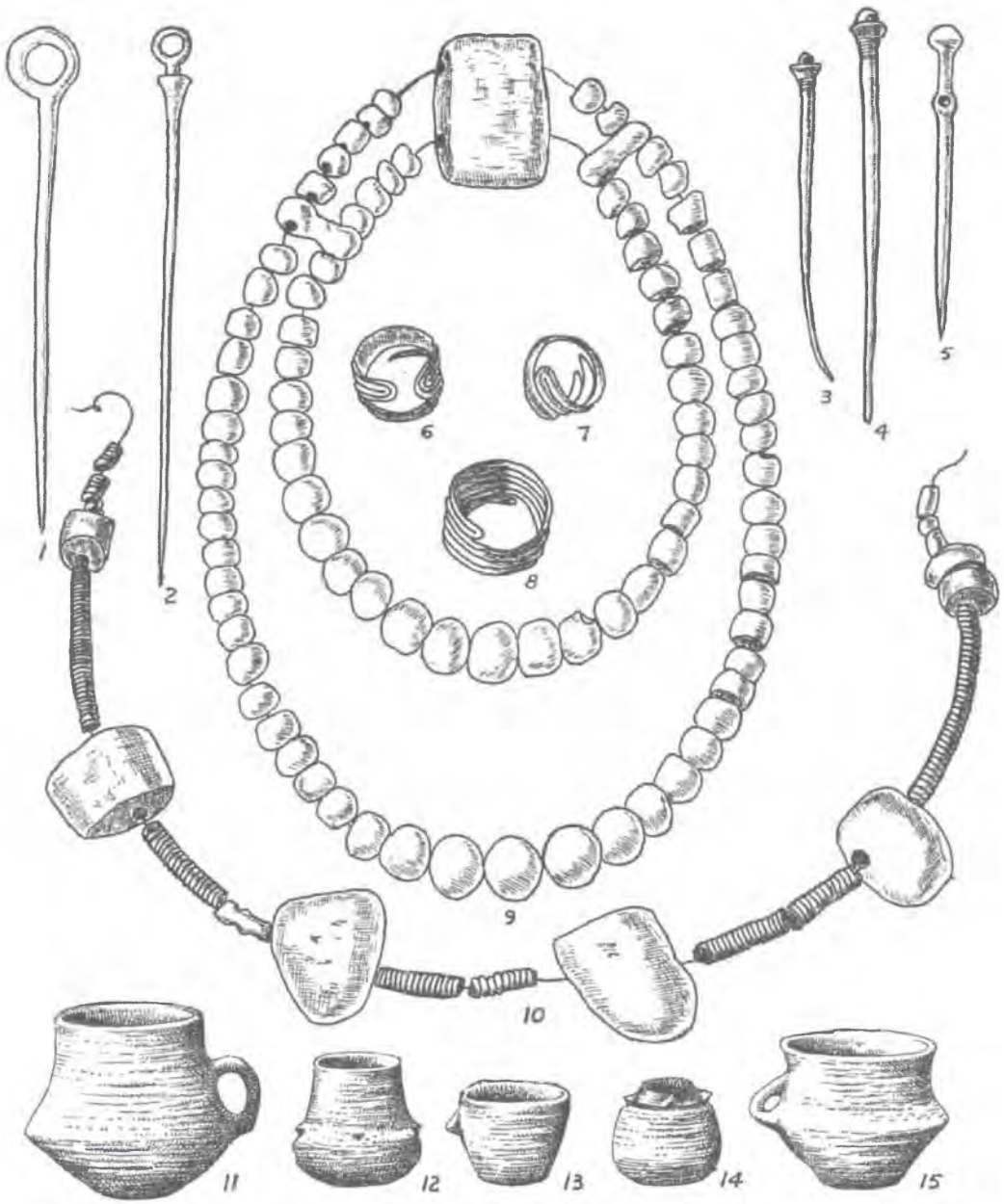


FIG. 176. Finds from the cemetery of Únětice, south of Prague. **1-5,** copper pins; **6, 7,** hair-rings of gold; **8,** copper hair-ring; **9,** necklace of amber beads; **10,** necklace of large amber beads separated by copper spirals; **11-15,** pots. Scale **1-10** approx. 2/3; **11-15** approx. 1/4. *After* Pič, 1899.

in a society of the Unětician kind objects are usually transmitted from one village to another, from one tribe to the next. Metal products were not the possessions of traders, but of the communities which produced them and their leaders. Hoards were frequently found in large pots unsuitable for transport, and their contents weighed up to 50 pounds. Could they be transported for thousands of kilometers? During the Unětice period flanged axes, neck-rings, massive bracelets and weapons which appear in the greatest quantity in hoards, had the value of currency and were kept not as necessities, but as goods valuable for exchange. Through inter-tribal exchange these goods could have reached far distances. As a precaution large numbers of surplus metal artifacts could have been buried and taken out when needed for trade. Hoards, wherever they were kept, symbolized the wealth of the village and of the whole

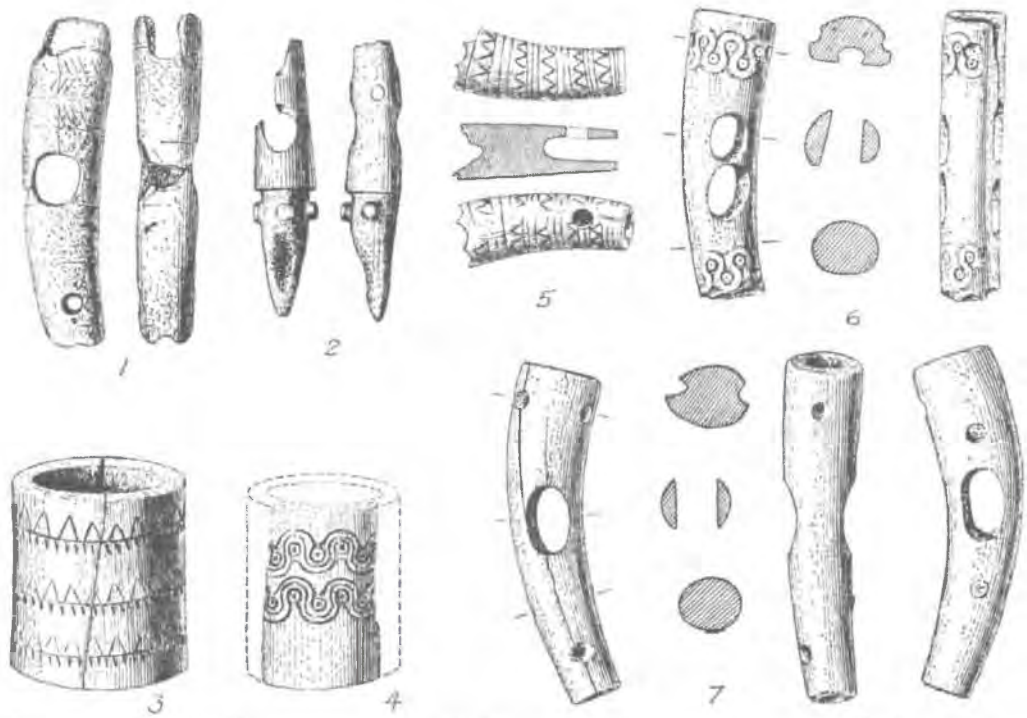


FIG. 177. **1, 2, 5-7,** cheekpieces for horse bridle and **3, 4,** cylinders of bone from the sites of Nitrianski Hrádok **(1-4)** and Male Kosihy **(5-7),** southwestern Slovakia. Madarovce group.
Scale approx. 1/3. *After* Točik, 1959.

tribe in the same way as did live stock, which, as we know from common Indo-European words and ethnological studies, played a great role in exchange. Metal artifacts were certainly easier to transport than cattle or sheep and made extensive economic contacts with northern, western and southern Europe possible for the Únětičians. During this period a mass of amber beads reached Mycenae (Shaft-grave Circle B) through Únětician hands and in one of the Mycenaean shaft-graves a dagger blade resembling Únětician rivetted daggers was found. The exchange of metal for amber initiated the Bronze Age in the Baltic area.

The end of the classical Únětice period seems to have coincided with the exhaustion of oxydical and carbonic copper sources after several centuries of extremely productive metallurgical occupation, and perhaps with new political configurations. The center of power shifted from central Germany and Bohemia to the eastern tribes in Moravia, western Slovakia and lower Austria.

c. *Late Únětice, ca. 1550 – ca. 1450* B.C.

The chief characteristics of this period are the rapid growth of military power, intensification of commercial activities, and close military or commercial contacts with the Otomani culture and the cultural groups in the middle Danube area. This change of cultural preoccupations probably is connected with the appearance of many hill-fort settlements in Bohemia, lower Austria, southern Slovakia, and Moravia. Slánska hora in Bohemia, Cezavy near Blučina, Bánov, Hradisko at Kroměříž, Olomouc in Moravia and Nitrianski Hrádok in Slovakia (Tihelka, 1960; Točík, 1958) are outstanding hill-fort sites. The highest points were chosen to command a view over many miles (pl. 43). Fortifications consisted of a ditch and a rampart. In Cezavy a stone wall of considerable thickness (pl. 44) was arranged next to the ditch. In Olomouc the wall was made of roughly hewn stones mixed with lime plaster.

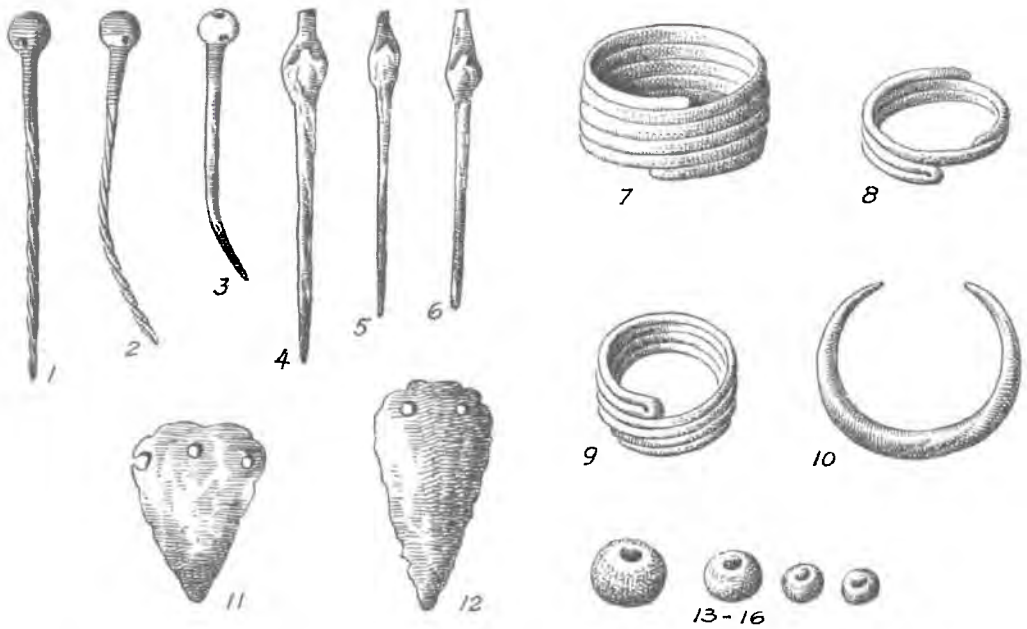


FIG. 178. Finds from the cemetery of Matuskovo, southwestern Slovakia (Maďarovce group). **1-3,** pins with perforated globular heads; **4-6,** pins with rhomboid heads with folded corners; **7,** spiral arm-ring; **8, 9,** hair-rings; **10,** bracelet; **11, 12,** dagger blades; **13-16,** amber beads. Scale approx. 1/3. *By courtesy of the Archaeological Museum in Nitra.*

Commercial contact with Mycenaean Greece is witnessed by amber beads found at Mycenae. Mycenaean influence left its trace in the ornamentation of bone cylinders, and plates or cheekpieces of horse bridles (pl. 10; fig. 177; cf. fig. 28, *1, 2, 5*). The miniature spoked clay wheels found in the sites of Moravia and western Slovakia (pl. 11, *7*) are presumed to be imitations of Mycenaean wheels such as those drawn on the stelae of the shaft-graves. Pithos burials of children and cremation graves which can also be ascribed to southeastern influences appeared along with regular Unětician inhumation graves with contracted skeletons (Cezavy site near Blučina; lowest layer of the Hradisko near Kroměříž in Moravia: Tihelka, 1958a; in Vepřek, Bohemia: Schranil, 1928, p. 93; in central Germany: Fischer, 1956, pp. 184-5).

Spearheads were a novelty in metallurgy. They were socketed, short, and had simple plain wings (fig. 179, *8*; pl. 11, *4*; 45, *2*). Flanged axes persisted, but now they had a graceful body and a developed, spatular-shaped edge (pl. 45, *1*; fig. 179, *4, 5*). Axes with flanges forming a V are typical of the late Únětice period (pl. 11, *5, 6*; fig. 179, *6, 7*; 181, *3*). Median-wing axes appeared (fig. 179, *3*). The use of bronze sickles certainly led to remarkable progress in farming. Such sickles were found in the stratified habitation site of Nitrianski Hrádok, western Slovakia, in the classical Mad'arovce layer (Točík, 1958), the late Únětice variant in western Slovakia. Among the hoard inventories long and narrow chisels (fig. 179, *1*), awls, needles, and long battles-axes ("Bohemian axes") wiht a ribbed socket around the shaft-holes (pls. 11, *2, 3*; 46, *1, 2*) are frequently found. Dagger blades were now narrower and slightly profiled (fig. 179, *2*; 181, *1*). Halberds are not among the late Únětice finds.

The repertory of ornaments changed considerably. In addition to persisting forms like knot-headed pins, basket-shaped or spiral rings (fig. 178, *8, 9*) and spiral arm-rings (fig. 178, *7*), pins with a perforated globular head (fig. 178, *1-3*) and those with rhomboid heads with folded corners (fig. 178, *4-6*) appeared. Both types have analogies in the middle Danube area, and appear in great numbers in the Vatya II complex. Hence they were probably borrowed from the south, but soon became so popular all over the Unětician domain that they can be said to be the most typical Unětician ornament of this period. Sacred ivy-leaf pendants, diadems and belt plates also seem to have come from the south, where their prototypes

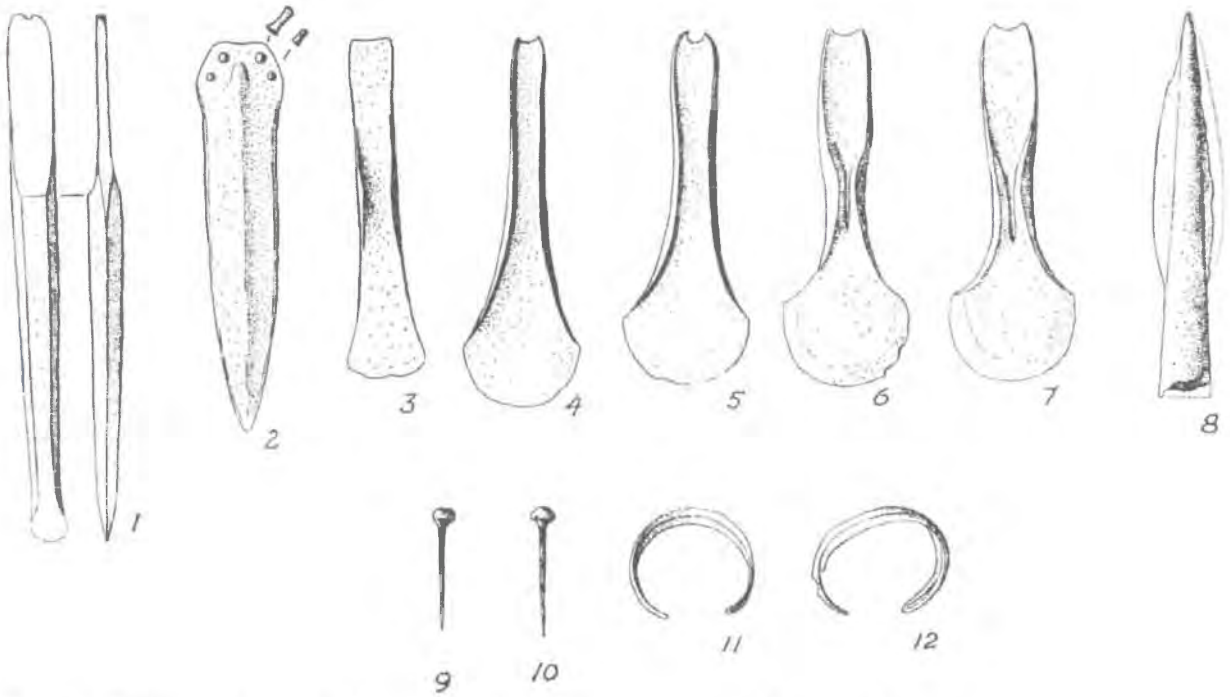


FIG. 179. Finds from the hoard of Neumětely, district of Horovice, Bohemia. **1,** chisel; **2,** dagger; **3,** median-wing axe; **4, 5,** flanged axes; **6, 7,** axes with flanges forming a V; **8,** spearhead; **9, 10,** pins with globular heads; **11, 12,** looped bracelets. Scale approx. 1/4. *After* Hájek, 1954, and Hachmann, 1957.

were known in earlier times. They were used by the early Pecica and the Kisapostag people. Bracelets and neck-rings developed into more elegant forms with tapered or with overlapping ends (fig. 178, *10*; pl. 45, *3*, *4*). Tutuli made of either a bronze plate or a round wire were an entirely new development (known from the tumuli on the Vltava river, Bohemia: Hájek, 1954, p. 127).

What I conceive as late Únětice in lower Austria is called the Böheimkirchen culture (Pittioni, 1954) and Věteřov in Moravia (documented now by no less than 80 sites and described in a monograph by Tihelka, 1960). Both groups are definitely Únětician in character. In western Poland and western Germany the same stage of Únětice culture also existed, but to make the general picture more complicated, the Polish group is called the Grobia culture.

Mugs continued to be a distinctive pottery type. They had now an entirely suppressed lower part (fig. 180, *1*, *2*). The cups (fig. 180, *5*; 181, *2*, *6*), bowls (fig. 180, *6*), amphorae (fig. 180, *7*; 181, *8*), beakers (fig. 180, *4*), sieves, and ladles of this period are derived from classical Únětice prototypes. Southern influences on late Únětice or Veteřov pottery in Moravia and particularly on western Slovakian Mad'arovce pottery are evident. Some forms and the technique of white incrustation were probably borrowed from the Incrusted Pottery culture in western Hungary. The Mad'arovce group, a southwestern branch of the Unětice culture, was the group most intensively exposed to the influences from the Incrusted Pottery and the classical Otomani cultures. Typical Mad'arovce pots had wide and high almost funnel-shaped necks.

The habitation sites of this period yielded a mass of bone and antler tools, weapons, and ornaments. Domestic and wild animal bones, antlers, tusks, and teeth were used profusely. Bronzes, even in the middle of the second millennium B.C., had not replaced the bone and antler industry. This fact is shown by excavations of habitation sites in western Slovakia like Nitrianski Hrádok, Veselé, Mad'arovce, Ivanovce, and others (Točik, 1959). Bone and antler was not only used for bone cylinders, cheekpieces (fig. 177, *1*, *2*, *5*, *7*), belt hooks (fig. 182, *7*), and ornamental plates (fig. 182, *13*), but particularly for

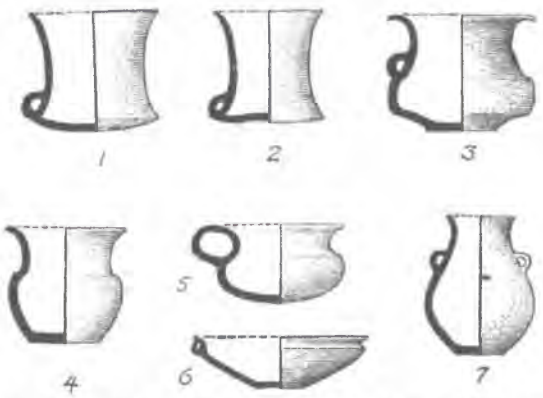


FIG. 180. Late Únětice pottery (Věteřov type) from Nitra (**1-6**) and Calovo (**7**) sites, southwestern Slovakia. Scale approx. 1/5. *By courtesy of the Archaeological Museum in Nitra.*

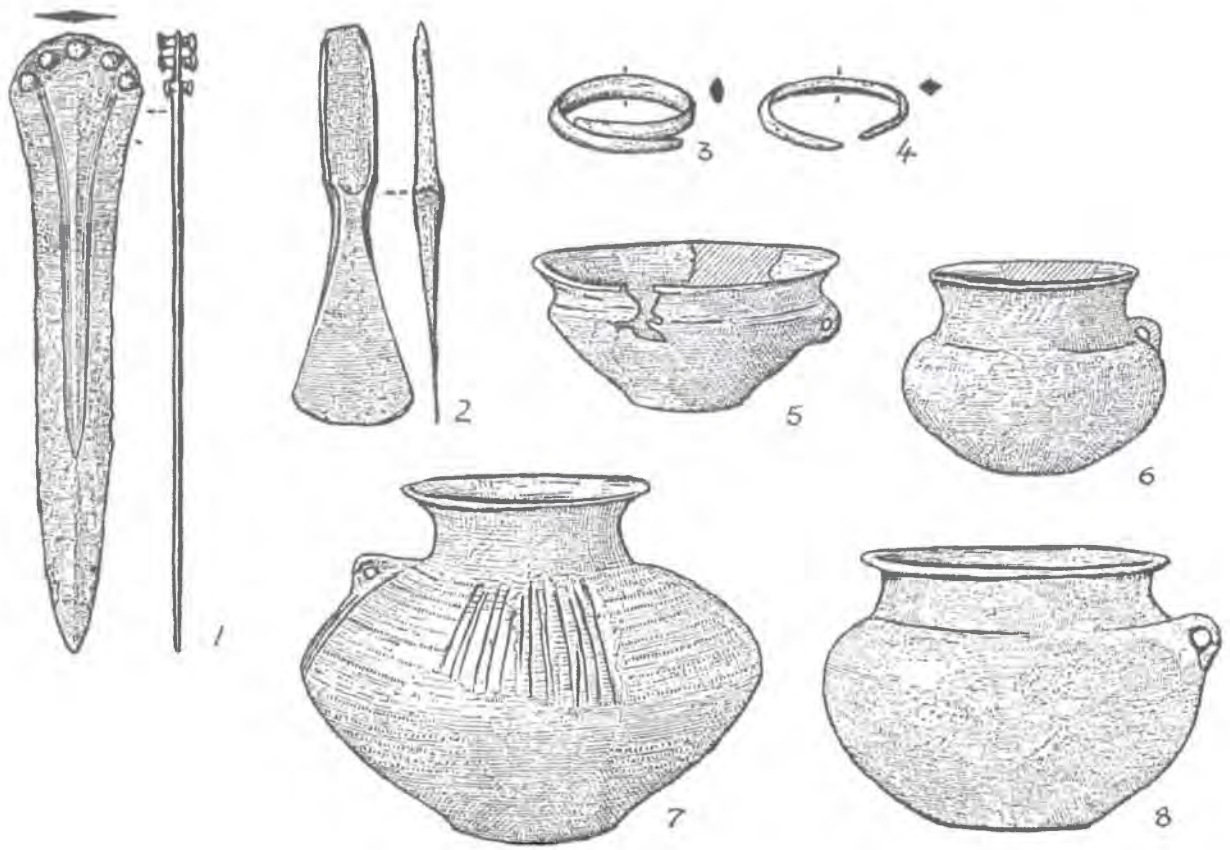


FIG. 181. Grave finds of late Unetice type from the cemetery at Schwarmitz, near Grünberg (Zielona Gora), northern Silesia. **1**, dagger; **2**, flanged axe; **3, 4**, bracelets; **5-8**, pots. Scale: dagger 1/3, bracelets 1/2, the rest 1/4. *After* Petersen, 1931.

everyday tools like awls (fig. 182, *2-5*), knitting needles (fig. 182, *1*), fishhooks, hoes (fig. 182, *8*), hammer-axes (fig. 182, *6*, *10-12*), chisels, polishers, sickle-like tools, and others. Peculiar bone artifacts are presumed to be skates or parts of sledges (fig. 182, *14*). This great variety of tools of all possible materials gives one an idea of Únětician activities in farming, hunting, fishing, knitting, weaving, spinning, leather-working, woodworking, etc. Clay whorls and loom-weights of pyramidal shape are frequently found in the better explored habitation sites.

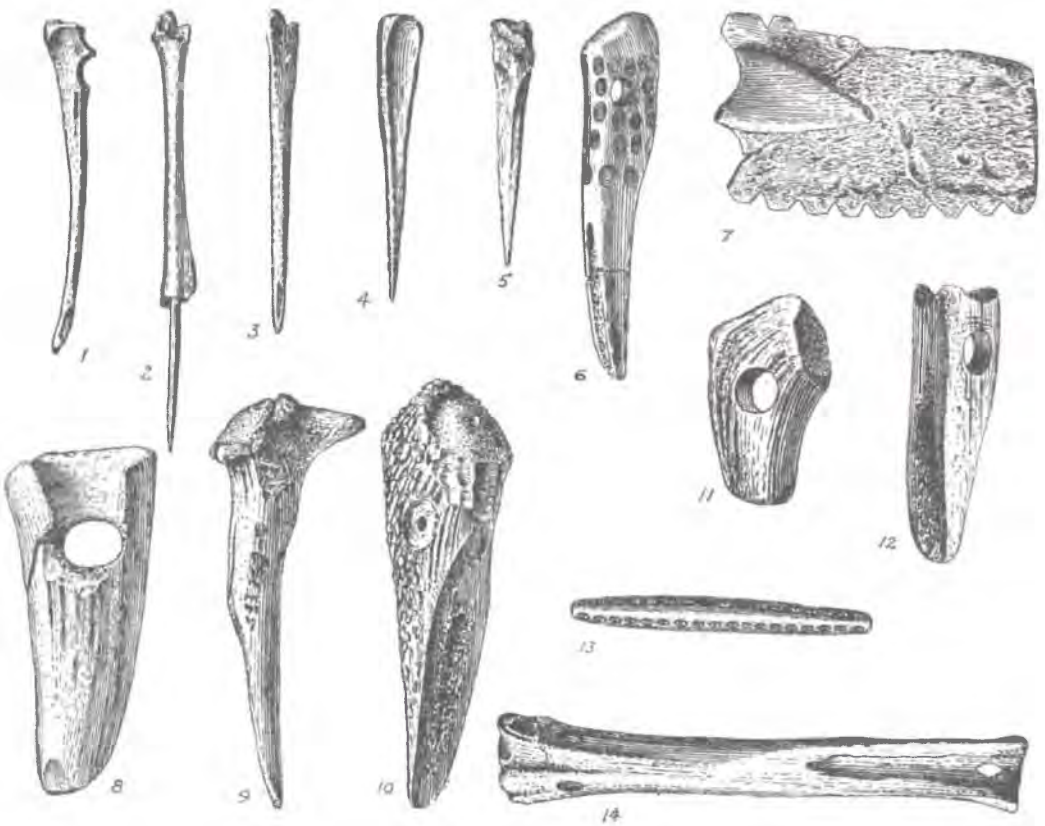


FIG. 182. Bone and antler tools and weapons from the late Únetice (Maďarovce) habitation sites in western Slovakia. **1,** a knitting needle; **2-5,** awls; **7,** unfinished belt-hook; **6, 10-12,** hammer-axes; **8,** hoe; **9,** dagger; **13,** an ornamented bone plate; **14,** skate or part of a sledge. **1, 3, 8, 9, 14,** Veselé; **2, 7,** Maďarovce; **5,** Ivanovce; **6,** Bodza; **4, 10, 13,** Nitrianski Hrádok. Scale approx. 1/4. *After* Točik, 1959.

At Hradisko near Kroměříž in Moravia small fragments of cremated human bones were found on a pin with a globular and diagonally perforated head (the pin is in the archaeological museum in Brno). The pin very probably belonged to a cremation grave of the lowest layer, Layer A, of this stratified site, that is, to the late Unětice period. Cremation graves datable by pins with globular heads have also been found in other cemeteries (tumulus I of the cemetery of Protivin near Vodňany, Bohemia: Hájek, 1954, p. 134). Thus, cremation is not a post-Unětice phenomenon. It penetrated gradually into the Unětice region as it did into the Otomani area. In certain cases, probably for sacrificial purposes, cremation rites were practised during the classical and early Únětice periods. The immediate neighbors of the Úneticians to the south – the Nagyrévians, the Hatvanians, the Incrusted Pottery and Kisapostag-Vatya people – cremated their dead throughout the first half of the second millennium B.C. and their rites were certainly not unknown to the Únětičians. Cremation was first adapted by the southern Únětičians who lived in present southern Moravia, western Slovakia, and southern Bohemia.

The burial rites of the late Úneticians were generally the same as during the classical phase. Graves are found under low barrows built of earth or clay and covered with stones. Barrows were usually low, about 1 m high, and rarely over 1.5 m, but they occupied an area of 10 to 30 m and did not necessarily cover only one grave. Two or three, and sometimes twelve or more graves often occupied one tumulus. The houselike grave structures were built of stones, stone slabs, or of timber, the latter preserved usually only in small fragments. Graves were arranged on a layer of white sand either above the ancient surface or in a pit. Many of the low barrows have been destroyed in the course of time, particularly

those lying in arable areas. Because those which still exist are so low that only a careful eye can notice them, there has arisen the same assumption as was made for the classical period, namely that the late Únětičians buried their dead in flat graves. Now a series of late Únětician tumuli have been found; the best-preserved are in forested areas (cf. the cemeteries of Tešinov, district of Vodňany, and Hosty, district of Tyn, Bohemia: Hájek, 1954).

The late Únětice period is not the end of the culture, but the close of the Únětician period. This was a pre-expansion phase during which the first conflicts between the Únětičians and Otomanians probably had already occurred as shown by Únětician and Otomanian hilltop fortifications and by the identical bronze objects found in both Únětician and Otomanian sites (Bohemian axes, pins with globular heads). Small warts on Únětician storage vessels can be ascribed to the Otomanian influence.

2. *The Tumulus Period, ca. 1450 – ca. 1250 B.C.*

a. *Expansion to eastern central Europe and the first post-expansion phase. Early and middle Tumulus assemblages, ca. 1450 B.C. – ca. 1350/1325 B.C.*

Somewhere towards the end of the fifteenth century B.C. a new cycle of movements started. The Únětičians, whose strength had been unequaled throughout the first half of the second millennium B.C. finally expanded and occupied or exerted influence on a large part of Europe.

Up to now it has been thought that the Únětice culture declined and that another vigorous power, the Tumulus culture, suddenly emerged to replace it. This idea is one of the greatest misunderstandings in central European archaeology. The persistence of the Únětice culture is demonstrated by all possible archaeological evidence: the stratified habitation sites with continuous habitation horizons; the unchanged elements in burial rites and social structure; and the series of persisting metal and pottery forms. There was no other power in Europe at that time which could occupy a vast area of eastern central Europe and keep the whole region between the Rhine and the Dnieper under its control. The Otomani culture was the most serious rival, but fortified classical Otomani sites witness the destruction brought by the Únětician or "Tumulus" people. This was a period of growth, not of decline, for this central European culture; its most powerful period had just begun. The expansion of course, meant a certain amount of cultural change. In spreading over the Hungarian plain and western Transylvania the Únětičians assimilated new elements which created rapid changes in, and enrichment of, the material culture.

Stratified sites yield the basic proof of the continuity of Únětician domination. One of the most revealing is the hilltop site of Hradisko near Kroměříž in Moravia, systematically excavated between 1949 and 1958 (Spurný, 1954; 1958). The village was fortified with a rampart and a ditch. Excavations revealed three cultural layers. Traces of layer A were found below the rampart, which shows that the earliest cultural remains precede the fortifications. In this layer a mug and other pots of the Věteřov type appeared. Layer B was above layer A in the fortification area. It contained a great number of pots and a few bronze artifacts. One of the bronze objects was a pin with a slightly ribbed head typical of the middle Tumulus period (Spurný, 1954, p. 371, fig. 12, *2*). The pottery forms were a transition style between the late Únětice (Věteřov) and the late Tumulus or Lusatian style (pl. 47). In this layer boss-decorated pottery appeared (pl. 47, *1-4*). Jugs, beakers, terrines and amphorae with cylindrical necks frequently were decorated with small warts (pl. 47, *9-11*). The pottery of layer B is called by Spurný proto-Lusatian. In connection with layer B or preceding it were several graves, some with contracted skeletons and one cremation grave in an amphora reminiscent of the late Únětice or Věteřov type. The bones were not completely cremated. Storage jars containing fragments of infants' bones, found in the cemetery near Hradisko, also seem to belong to the same phase. Layer B ended in destruction. Imme-

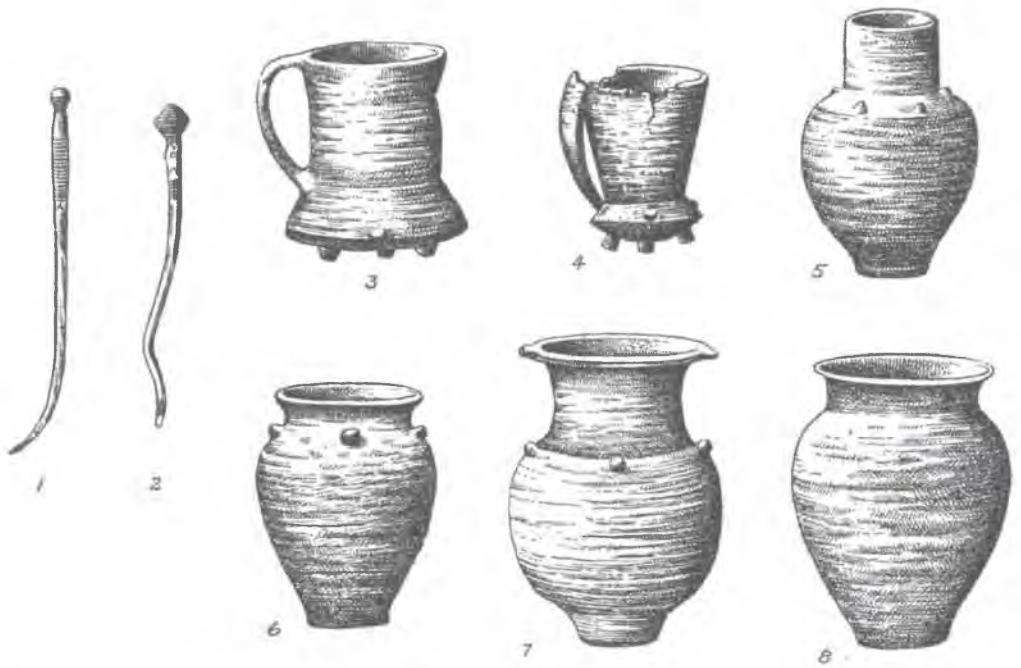


FIG. 183. **1, 2,** pins and **3-8,** pots from the post-Maďarovce layer of the stratified habitation site of Nitrianski Hrádok, western Slovakia. Scale: pins approx. 1/2; pots **3, 4,** approx. 1/3, **5-8,** approx. 1/6. *By courtesy of the Archaeological Institute of the Slovak Academy of Sciences in Nitra.*

diately above the layer of destruction was layer C which revealed pottery of classical Lusatian type. There were boss-decorated amphorae, terrines, and jugs, as well as bowls and dishes, all of which show continuity with layer B forms. A cemetery containing cremation graves adjoining the southern part of Hradisko belonged to the same phase as layer C.

In the stratified site of Nitrianski Hrádok near Nitra in western Slovakia, the classical Mad'arovce layer (late Únětice or Phase A_2) is immediately succeeded by a layer containing bronzes from the beginning of the Tumulus period. Typical objects are: pins with bent stems with a semiglobular or mushroom head which is perforated (like that in fig. 184, *5*); pins with a small biconical head (fig. 183, *2*) or small globular head decorated on the neck with striations and zigzags (fig. 183, *1*); banded bracelets with horizontal ribbings; pots with cylindrical necks decorated with small sharp warts (fig. 183, *5-7*); and pots with high widening cylindrical necks and a suppressed biconical lower part (fig. 183, *3*, *4*). This phase is called by Točík post-Mad'arovce or proto-Tumulus (Točík, 1958).

The same sequence and the gradual evolution of bronze and pottery forms are documented by the finds in the cemetery of Majcichov in western Slovakia (Chropovský, 1958). This large cemetery held inhumation and cremation graves of the late Únětice or classical Mad'arovce, and of the succeeding post-Mad'arovce phase. The first is represented by finds like pins with globular perforated heads, the second, by pins with semiglobular or mushroom heads (fig. 184, *5*) which are a later variant of the former, pins with a small spiral head (fig. 184, *4*), and by pins with small conical heads (fig. 184, *1-3*). The pins of both phases usually have a curved shank. Both grave types of Majcichov yielded an abundance of amber and faïence beads. Hoards which contain the same bronze forms may also be mentioned. The hoard from Smedrová in southern Bohemia included a pin with a small conical head (pl. 48, *13*), a median-wing axe (pl. 48, *9*), long and narrow chisels (pl. 48, *1-6*), a spearhead (pl. 48, *10*), and sickles (pl. 48, *7*, *8*, *11*, *12*). The forms of the chisels, spearheads, median-wing axes, and sickles were about the same as during the late Únětice period.

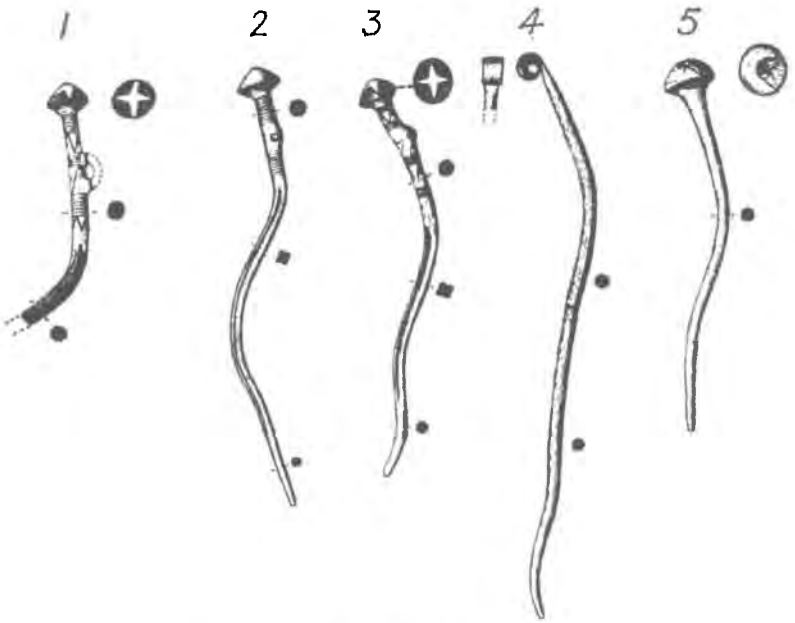


FIG. 184. Pins **1-3**, with biconical head; **4**, with a small spiral head; and **5**, with a mushroom head with a perforation on top from the cemetery of Majcichov. Post-Mad'arovce horizon, earliest phase of the Middle Bronze Age. Scale approx. 2/3. *By courtesy of the Archaeological Institute of the Slovak Academy of Sciences in Nitra.*

If the late Unětice period including classical Mad'arovce and Věterov with its connections with Mycenaean I and II can be dated as 1550-1450 B.C., the post-Mad'arovce phase or the beginning of the Middle Bronze Age very probably belongs to the second half of the fifteenth century B.C.

The next assemblages of bronzes, the Koszider type, with a considerably wider distribution as a result of expansion and influence, must have been manufactured before or around 1400 B.C. In the chapter on chronology, I devoted a whole section to these bronzes (fig. 32; pl. 14) and their wide distribution between the Rhine and the Dnieper, and the Baltic and Black Seas. Hundreds of hoards and graves in Poland, Germany, Hungary, Czechoslovakia, the western Ukraine, Rumania and Yugoslavia have yielded the same type of bronzes. Finds like sickle-shaped pins with disc heads (fig. 32, *16*, *17*; pl. 14, *5*), spiral armrings ending in small spiral discs (fig. 32, *18*, *19*; pl. 14, *11*), massive bracelets with a specific decoration of zigzags and striations or semicircles (fig. 32, *24-26*), sacred ivy-leaf pendants (fig. 32, *30-37*; pl. 14, *1*, *2*; pl. 50, *1-3*), circular pendants with a concentric decoration (fig. 32, *28*, *29*; pl. 14, *3*, *4*,), and "Hungarian" battle-axes (figs. 32, *8*, *9*; pl. 14, *6*) are the most frequent and diagnostic objects of this phase.

Metal production and the repertory of bronze types increased because the former Uneticians now possessed the whole Carpathian metalliferous area and borrowed many forms and elements from the people they subjugated. Weapons and ornament decoration was largely inspired by the Otomanians who were masters in minute ornamentation by incision of spirals, semicircles, triangles, rhombs, and other geometric motifs. Many metallurgical workshops have been found in Hungary (Bóna, 1960), and chemical analysis of typical bronzes for this period, like sickle-shaped pins, has shown that they were produced from copper in the eastern Alpine area and from western Carpathian ores (Pittioni, 1958).

The culture of the expansion and post-expansion period is distinctive for its productivity and creativity; it was not merely enriched by borrowings and influences. Several kinds of bronze sickles, with tangs and buttons, were used (pl. 14, *7-10*). The socketed celt was invented. The earliest form of socketed celt, decorated only with lines along the sides (fig. 32, *14*), betrays its connection with the flanged axe

(pl. 14, *17*). In many instances a flanged axe has been found with a bronze wire around it used for fastening on a wooden handle, and the idea of making a socketed celt could have been derived from this kind of use. I presume the central European people invented this tool independently, without familiarity with the Siberian-eastern Russian socketed celts of Sejma type. The central European ones may even precede the Sejma celts, although both types appeared around 1400 B.C.

Swords and daggers appeared now in greater numbers and variety than in Únětician times. Swords of the early Tumulus Sauerbrunn (fig. 38) and middle Tumulus Keszthely (fig. 187, *4*) types were used in addition to bronze-hilted swords (fig. 39, *1-3*) and around the middle of the fourteenth century B.C. straight-blade flange-hilted swords of Třebívlice type (fig. 40, *2*) and rapiers emerged (pl. 15, *1*). They were not imported from the south, yet Mycenaean influence must have been responsible for the fact that hilts of a specifically Mycenaean type were placed on Hammer type swords (fig. 42, *1*), contemporary with those of Třebívlice. Another novelty among the weapons was the bronze arrowhead which superseded the flint specimens (figs. 40, *3*; 41, *3*). In graves they usually accompany the earliest flange-hilted swords, indicating that in war the sword and bow were used in combination.

In the sphere of ornaments many variants of pendants and ornamental plates – conical, disc-, trumpet-, and bell-shaped – worn attached to belts, dress, and chest ornaments (cf. the grave inventories from the cemetery of Nová Hospoda in Bohemia: Jilková, 1958, p. 319, fig. 6; the hoards of Lovas and Vukovar on the Danube in Croatia: Vinski, 1958, or the hoard of Jaworze Dolne in southeastern

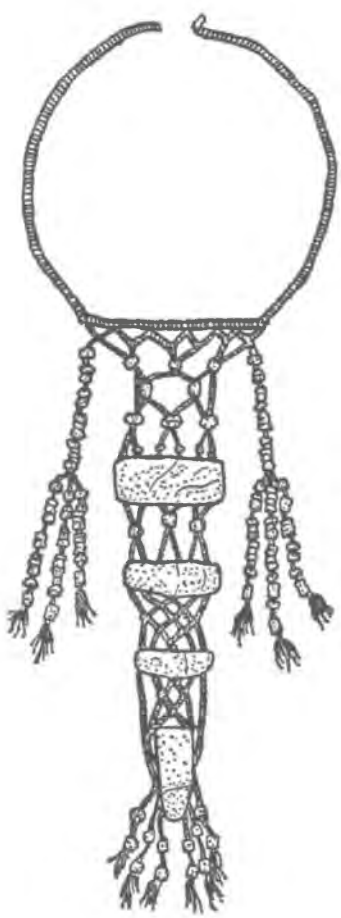


FIG. 185. Reconstruction of a breast ornament made up of amber spacer beads, small amber beads and bronze spirals. After the finds in the cemetery of Asenkofen (Grave E), Bavaria.
Scale approx. 1/3. *After* Hachmann, 1957a.

Poland: Nosek, 1959). The technique of decorating bronze plates by embossing from the inside with various patterns is a new achievement of this period. Diadems, belts, and spiral armbands made of broad bronze plates were richly decorated with groups of bosses, with circular impressions made by a sharp instrument, or with incisions of semicircular lines (cf. fig. 188, *2*; Bóna, 1959, pl. X). Sun and star motifs made of various combinations of dots, circles, or semicircles, found their best expression on the disc-shaped heads of pins (fig. 32, *16*, *17*). The general character of ornaments and their decoration in the post-expansion phase persisted throughout many successive centuries. The extremely rich decoration of upper class ladies' costumes has no precedent in Europe except in Mycenaean Greece. Amber spacer beads with vertical, diagonal, and zigzag perforations were used in a breast decoration made of cord, bronze spirals, tiny cylindrical amber beads, and of several large spacer beads. The reconstruction made by Hachmann is shown in figure 185. This special ornament has its roots in Late Helladic II culture and was used for several centuries.

Unětice pottery, which through the centuries had been rather simple, usually undecorated, and neither beautiful nor sophisticated in form, now began to show elements of the baroque Otomani style; some elements can be traced to the Incrusted Pottery, Vatya, and Pecica styles. Emancipation from conservatism and a baroque quality of form is a striking feature of this phase. Amphorae, terrines, and ovoid storage vessels with cylindrical necks had small sharp warts above the middle of the belly or close

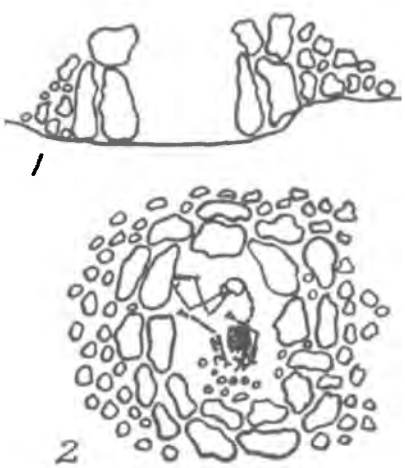


FIG. 186. **1**, section and **2**, plan of a Tumulus grave, Phase B, built of large slabs and field stones. Grosshöflein-Föllik cemetery, lower Austria. *After* Willvonseder, 1937.

to the neck. Jugs, footed vessels, and amphorae were decorated with bosses encircled with concentric lines. Amphorae with two small handles sometimes had flutings over the lower part or were decorated around the shoulders with striated triangles. Pottery quite similar in form and decoration, has been found all over the former Unětician territory and eastern central Europe, now annexed to or under the influence of the central European culture. Jugs had bosses around the belly like Otomanian boss-decorated jugs, and had a high handle with a depression on top, an *ansa lunata* of the Pecica kind (fig. 189, *1*, *2*, *5*; analogies in horizons XIII and XIV of the Pecica site: fig. 120). There is no doubt that southern influences played a decisive role in the transformation of Unětician pottery into baroque shapes, but neither Otomani nor Pecica pots were imitated completely. The spirals which interlace the warts or bosses in a great variety of motifs on the Otomani pots never appeared on the Tumulus pottery. The central European people adapted the boss-decorations, but they applied them in their own style. Bosses were always isolated and encircled with several concentric circles or dots.

Burial rites show incontestable continuity with the Unětician period. Low tumuli of earth, mixed with sand or clay, were constructed over graves of cists made of stone slabs or natural stones lowered

in the ground (fig. 186) or built above the ancient surface. Fragments of wood in some graves may also indicate timber constructions in addition to the stone ones. The tumulus was, in many cases, covered with a layer of stones made up of several rows of head-sized stones. Social status played an important role in tomb building as it did during the Únětice period. Royal graves differ considerably from the usual ones. The size of the tumulus and of the tomb is larger; even the posture of the buried man is different. Instead of being contracted, the royal man or chieftain was buried in the outstretched position. Such a royal tomb was discovered in Keszthely on Lake Balaton in western Hungary. The royal personage was in a chamber built of carefully prepared stones. Large slabs were used for the

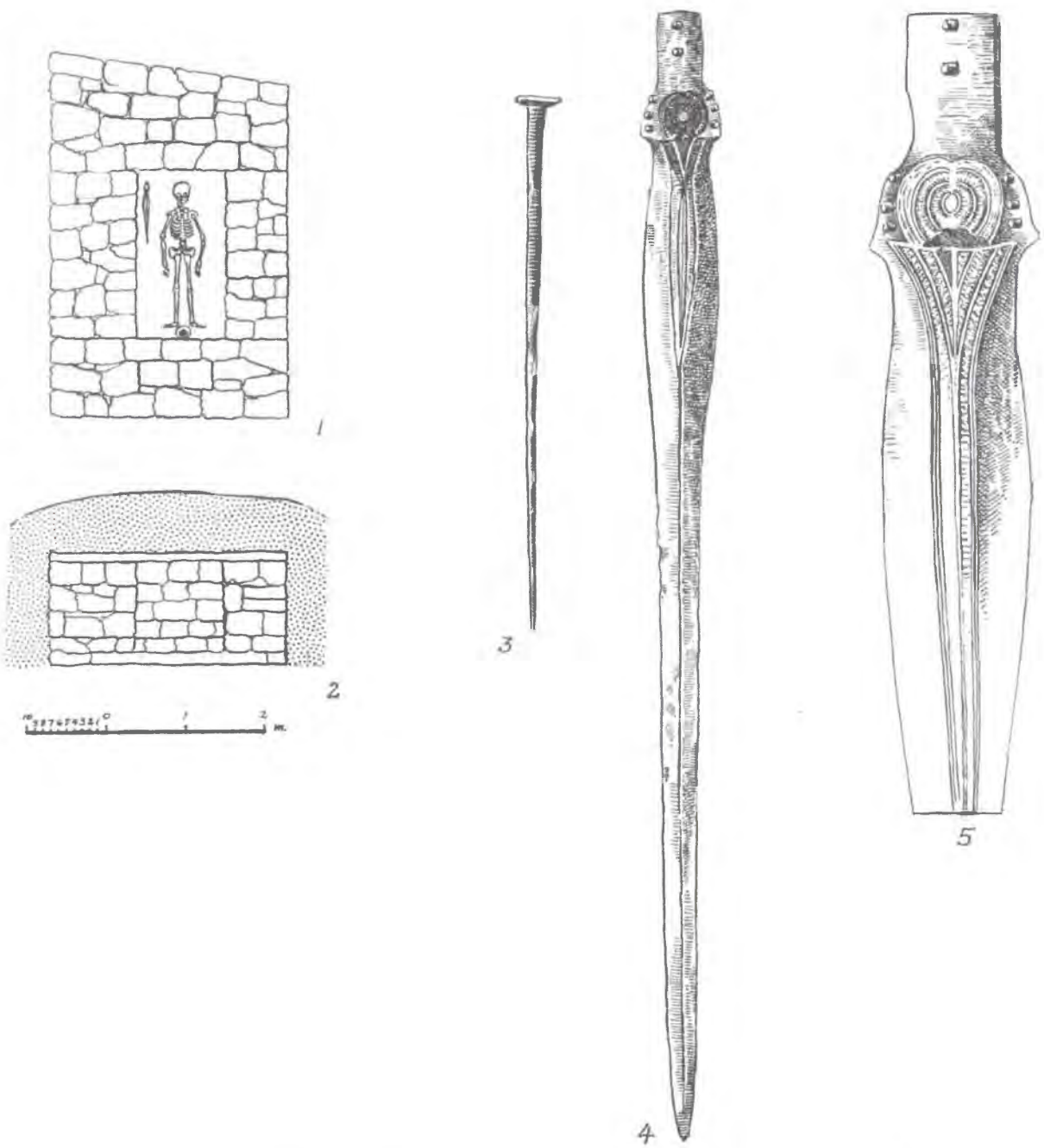


FIG. 187. The royal grave of Keszthely at Lake Balaton, western Hungary. **1**, plan; **2**, vertical section; **3**, pin; **4**, sword of Keszthely type, 69 cm. long; **5**, upper part of **4**. *After* Lipp, 1885.

roof and the floor. The chamber was covered by an earthen tumulus (fig. 187, *1*, *2*). In addition to a vase placed at the end of the feet, the man was equipped with a sword of Keszthely type (fig. 187, *4*) and a pin with a small disc head (fig. 187, *3*). In ordinary graves the dead lay on their sides in the contracted position. In addition to bronzes and pots, bones of sacrificed animals – sheep, goats, cattle, and horses – appear.

Special structures were arranged for sacrifice. Traces of one such structure build of stones, clay, and timber posts were brought to light in Pritluky on the Danube in Moravia. It was 25 m long and 5 m wide. Within this area a large pit, 11 m by 3-4 m, appeared which contained human and animal bones and other objects, four complete skulls, five human mandibles, fragments of other skulls, one skull of a horse, a gold spiral, and a hoard including two sickles, two daggers, two pins with flat disc heads, a flanged axe, and six massive bracelets were found here (Trňáčková, 1954).

Inhumation was still the dominating form of burial, but cremation was, step by step, superseding it. In addition to sporadic cremation graves in urns, a series of so-called biritual cemeteries, in which inhumation and cremation graves appear together, occurred. From the grave goods we know that both kinds of graves belonged to the same period. Such cases were found in the Majcichov (Chropovský, 1958) and Svätý Peter (Dušek, 1959) cemeteries in western Slovakia and in the cemetery of Nová Hospoda near Plzeň in Bohemia (Jílková, 1958).

Because of the low earthern barrows this post-Únětician culture is called the "Tumulus" culture. This label is a most unfortunate one. Largely through it the Tumulus culture became separated from the Únětice. In fact, the Úněticians, the Tumulus and the Urnfield people were all tumulus builders.

Amalia Mozsolics, in her article of 1957 entitiled "Archäologische Beiträge zur Geschichte der grossen Wanderung" (Archaeological data on the history of great migrations), in which she follows the intrusion of the "Tumulus" culture into eastern central Europe in connection with the appearance of bronzes of Koszider type, tends to date this "great migration" with the end of the thirteenth century B.C. (Mozsolics, 1957). The first wave of expansion, however, cannot be paralleled with Late Helladic III B. It occurred some one hundred and seventy years earlier.

The first wave of expansion brought catastrophe to the Incrusted Pottery, Vatya, Pecica, and Otomani cultures, but not to the Mycenaean culture. Hungary, Rumania, eastern Slovakia, and northern Yugoslavia were now in a state of war. The distribution of Mycenaean spearheads and rapiers in Slovakia, Rumania, and Bulgaria is significant. The sites were fortified. The top layers of outstanding tells like Tószeg, Vărșand, Várdomb of the Otomani culture, and the Pecica tell of the Pecica culture, yielded finds of the Koszider type. These tells mark the end of the existence of these cultures. The hoard found in the top layer of Pecica contained a beautiful vase gracefully encircled with channels and sharp warts (fig. 188, *1*) and a richly ornamented spiral armband ending in small spirals with attached pendants (fig. 188, *2*), objects which must have belonged to an upper class person. The vase is neither late Únětician nor Pecica nor Otomanian in style, but is a clear hybrid. In the habitation site of Vărșand a hoard was found which included sickle-shaped pins with disc heads, a spearhead, a needle, an awl, and animal teeth (Popescu, 1956b, p. 305; reference in the bibliography for eastern central Europe).

The same kind of bronzes and pots of hybrid appearance came to light in the series of cremation cemeteries in Hungary and Rumania: Rákóczifalva, district of Szolnok; Bogárzó and Bilisits near Szeged (Milojčić, 1953, p. 263, fig. 14, *1-7*; Foltiny, 1957, pls. I-IV, VI-VIII) in Hungary; Turgu Mureșului (Marosvásárhely) in the lower Mureș area in Transylvania (fig. 34). The cremated dead were equipped with disc-headed pins with a twisted and bent stem, massive bracelets, sacred ivy-leaf pendants, jugs decorated with bosses and incised parallel lines and flutings (cf. pot from the habitation site of Dunapentele-Kosziderpadlás and the cemetery of Rákóczifalva: fig. 189, *1-3*), and large amphorae with cylindrical necks and two small handles, or without handles, decorated with small bosses around the neck and the lower part of the belly (fig. 189, *4*). These Hungarian and west Rumanian finds have their closest parallels in western Slovakia, as for instance, in the biritual cemetery of Svätý Peter (figs. 33 and

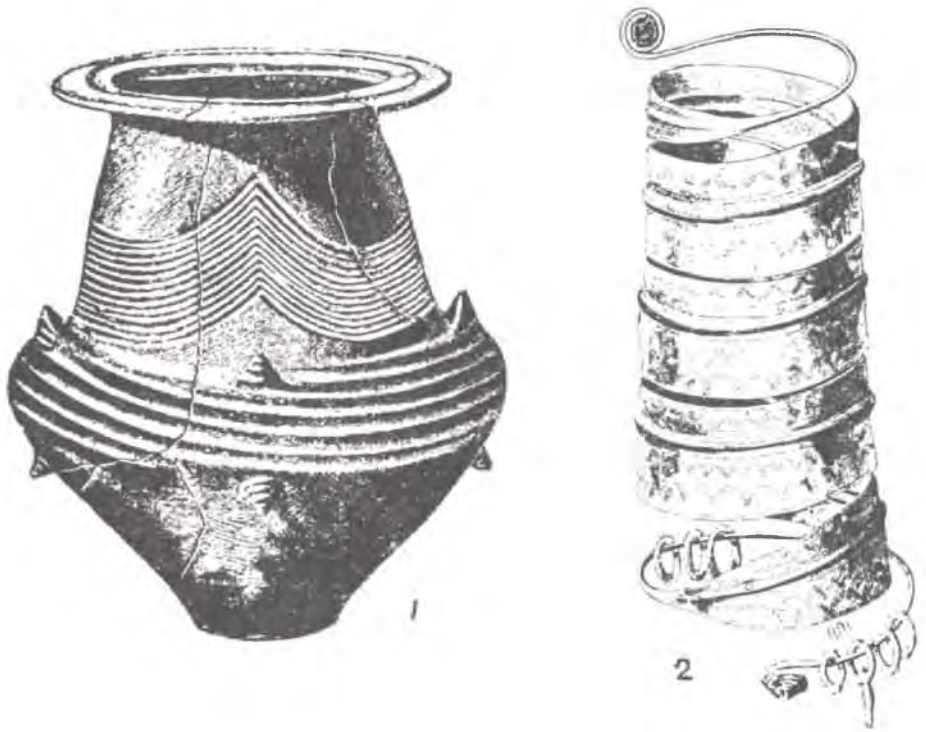


FIG. 188. **1**, vase and **2**, spiral armband from the hoard found in the top layer of the Pecica tell near Arad, western Rumania. Scale: vase approx. 1/4, armband approx. 1/2. *After* Åberg, 1935.

189, *5*) and in lower Austria (cf. the cemeteries of Regelsbrunn, Grosshöflein, Leobersdorf, Sauerbrunn and others: Willvonseder, 1937b, pls. 23-26, 28).

The fact that the largest number of hoards containing the above-mentioned finds come from the Danube area in Hungary apparently indicates the main road of the southward movement. The outstanding hoards are those found at Rákos-Palota (Hampel, 1887, pls. LXXXVI and LXXXVII), Alsónemedi, Pusztaszentkirály, Dunapentele-Kosziderpadlás I, II, and III (fig. 32; pl. 14; Mozsolics, 1957, pls. XIV-XXVI), Simontornya near Tolna (Nestor, 1938, p. 188), and others located along the Danube south of Budapest. They are paralleled in western Slovakia (cf. the hoard of Dunajská Streda or Vyskovce near Šahy, southern Slovakia: Kraskovská, 1951; Balaša, 1955). Koszider bronzes have been found south of the Drava and Sava in Yugoslavia, the southernmost point being Glasinac, east



FIG. 189. Pots from the Tumulus expansion period, Koszider phase. **1**, Dunapentele-Kosziderpadlás habitation site, south of Budapest; **2-4**, cemetery of Rákóczifalva, northern Hungary; **5**, cemetery of Sväty Peter, western Slovakia. Scale, **1-3**, **5**, approx. 1/4; **4**, approx. 1/7. *After* Mozsolics, 1957 **(1)**, Tompa, 1937 **(2-4)**, and the Archaeological Institute in Nitra **(5)**.

of Sarajevo in Bosnia. In the uplands of Glasinac and around it within a radius of some 40 km, where hundreds of barrows dating from the Late Bronze and Early Iron Ages exist, Koszider bronzes have been identified in ten cemeteries which include both inhumation and cremation graves (Benac and Čović, 1956, pp. 63-64). In the chronological classification of Glasinac materials the Koszider horizon is labeled Phase IIa and it is considered to be the beginning of the Illyrian culture (Benac and Čović, 1956, p. 63).

The Otomanian fortified village at Barca in eastern Slovakia seems to have met the same fate as the other Otomanian sites in Hungary and Rumania. In horizon 2 of layer I (the top layer), very rich finds of bronze and gold were made. Their forms belong to the Koszider phase. One hoard of bronzes and amber and faïence beads found among the remains of a wooden box contained two very large sacred ivy-leaf pendants, decorated with spirals in Otomanian style (pl. 50, *2*, *3*), 12 sacred ivy-leaf pendants of smaller size (pl. 50, *1*), one pendant of solid bronze plate (pl. 50, *6*), a necklace of amber beads (pl. 50, *4*), a necklace of bronze spirals (pl. 50, *5*), a necklace of faïence beads and incisor teeth (pl. 50, *7*; not fully illustrated), a neck-ring with overlapping ends (pl. 50, *9*), bracelets made of round wire with spiral-plate ends (pl. 50, *8*, *10-12*), and other artifacts.

An unusually great number of gold treasures has been reported from the same area where bronzes of Koszider type were found. In the same layer of Barca where the hoard of bronze ornaments was discovered, but in a different place, a gold treasure came to light. The gold was found in a small pot in one of the houses of the village. The pot contained hollow hair-rings with overlapping ends of various sizes (the larger specimens were decorated with an imitation cord motif in relief), a necklace of biconical beads, a necklace of cylindrical spiral beads, and a necklace made of twisted thin gold wires with double-spiral pendants attached to it (pl. 51).

Finds from both treasures of Barca have close parallels in the inventory of one urn-grave from the cemetery of Oroszipuszta, district of Békés (former Bihar) in Hungary near the border of Rumania. The find included large and small sacred ivy-leaf pendants, circular pendants with a concentric decoration, gold beads and hollow hair-rings, spiral beads, perforated wolf's teeth, a "Hungarian" battle-axe, and other objects (Tompa, 1937, pl. 34). This extremely rich inventory from one grave as well as gold treasures like those from Barca indicates the existence of extremely wealthy nobility or chieftains.

Gold hair-rings of the Barca type were convex, not made of solid gold wire like the hair-rings found in the Únětician royal tombs; some had broad and massive ends. The same kind of gold hair-ring was found in many sites in eastern Hungary, Rumania, and northern Yugoslavia. In 1957 a pot filled with gold hair-rings was found in Kengyel near Szolnok on the Tisza. Usually, they had overlapping ends, but some had one end twisted in the opposite direction (Mozsolics, 1958). To the same series of gold hair-rings can be attributed the hoard or grave find from Velika Vrbica in northern Yugoslavia where hair-rings were associated with biconical golden beads and sacred ivy-leaf pendants (Garašanin, 1958, pl. 19). In the center of Transylvania, at the actual gold sources, hair-rings made of gold convex plates have been found in considerable numbers (Popescu, 1956b, pp. 201, 202, figs. 118-120; Zaharia, 1960; reference in the bibliography for eastern central Europe).

With these gold treasures I close the discussion of the period of expansion and remarkable enrichment. The creations and adaptations of this period were continued during the late Tumulus period.

b. *The late Tumulus period: period of prosperity and increased differentiation, ca. 1350/1325 – ca. 1250* B.C.

This is a period before the great expansions of the mid-thirteenth century B.C. or soon thereafter, during which the higher classes enjoyed their remarkable wealth, while material culture was not stagnant. Although, in the majority of instances, artifact forms continued from the preceding period, there was a trend toward great variation and individualization of forms. In contrast to the warlike period of

expansion when new dagger and sword forms and bronze arrowheads appeared, toilet articles suitable to peacetime such as bronze razors (fig. 45, *12*) were invented, as well as a variety of bronze pins, bracelets, collars, and necklaces.

The central European culture, which at the end of the fifteenth century B.C. and around 1400 B.C. was considerably uniform over a large area of Europe, differentiated, during the fourteenth and the first half of the thirteenth centuries B.C., into many local groups. Not all of them were so different from one another, however, that they can be treated as separate cultures. There is more divergence in the so-called Piliny group in northern Hungary and eastern Slovakia where Otomani elements had not yet died out. Hence I shall divide this description into two major groups: i) Tumulus proper and ii) Piliny.

i. *Tumulus proper*

Tumulus proper occupied the middle and upper Danube, Elbe, and Oder basins and the Rhine basin, a vast area covering western Hungary, western Slovakia, Moravia, Bohemia, Austria, Switzerland, eastern France, Germany, except its northwestern part, and western Poland. This area contains not only fertile valleys and plains, but also uplands and forests. The settlements and cemeteries are usually found along rivers, large or small.

The Tumulus culture can be divided into five main groups:

1. The Rhenish with its center in southwestern Germany and extension into eastern France, middle and lower Rhine.
2. Saxo-Thuringian-Bohemian.
3. North Alpine (or Upper Austrian-Bavarian).
4. Middle Danubian in lower Austria, Moravia, western Slovakia, western Hungary and northwestern Yugoslavia with outposts in northeastern Italy and Bosnia.
5. Lusatian in eastern Germany and western Poland.

The difference between these local groups are evident only in local pottery styles and in variants of ornaments. The general cultural level was about the same throughout the area, but its center lay along the Danube. The richest finds come from Bohemia, Austria, Bavaria, and southern Thuringia; the Rhenish and the Lusatian groups were peripheral.

The same type of low barrows as those made during the late Únětice and the early and middle Tumulus were built all over this area (fig. 190). Tumuli were large or small and were scattered at random (fig. 191). Tumuli from different Bronze and Early Iron Age periods occur in the same cemetery. This shows a long habitation in one small area as indicated by the cemetery of Hájek in Bohemia (fig. 191) and many others. The cemeteries are usually made up of groups of tumuli, rarely more than 100. Where there are cemeteries larger than this the barrows belong to several periods. From the cemetery type it can be guessed that the communities were small and very similar to those of the Únětice. As yet, only a very few habitation sites have been excavated. Stratified hilltop sites like Hradisko (fortress) near Kroměříž give evidence of continuous habitation. Continuity of occupancy is also plainly indicated by cemeteries where graves of early, middle, and late Tumulus phases appear (cf. Nová Hospoda cemetery, Bohemia: Jílkova, 1958).

From recent excavations in southern Thuringia, valuable information has been obtained about burial rites. The rich dead, attired in their best clothes, were not simply placed on the earth and covered by stones and an earthen barrow. As excavations of the cemeteries in the area of Schwarza in southern Thuringia have shown (Feustel, 1958), they lay in a sort of coffin or chamber built of round tree trunks or of stone blocks or limestone slabs roofed with wooden logs, placed either above a layer of white sand or above a pavement made of stone slabs. Traces of offerings, usually bones of young cattle, were found below the coffin. Charcoal and hearths at the bottom of the barrow indicate a funeral fire. The birch tar and molten amber may indicate the use of torches which produced an aromatic frankincense or fragrance. The funeral ceremonies took a long time, for finds of fly larvae over the skeletons indicate

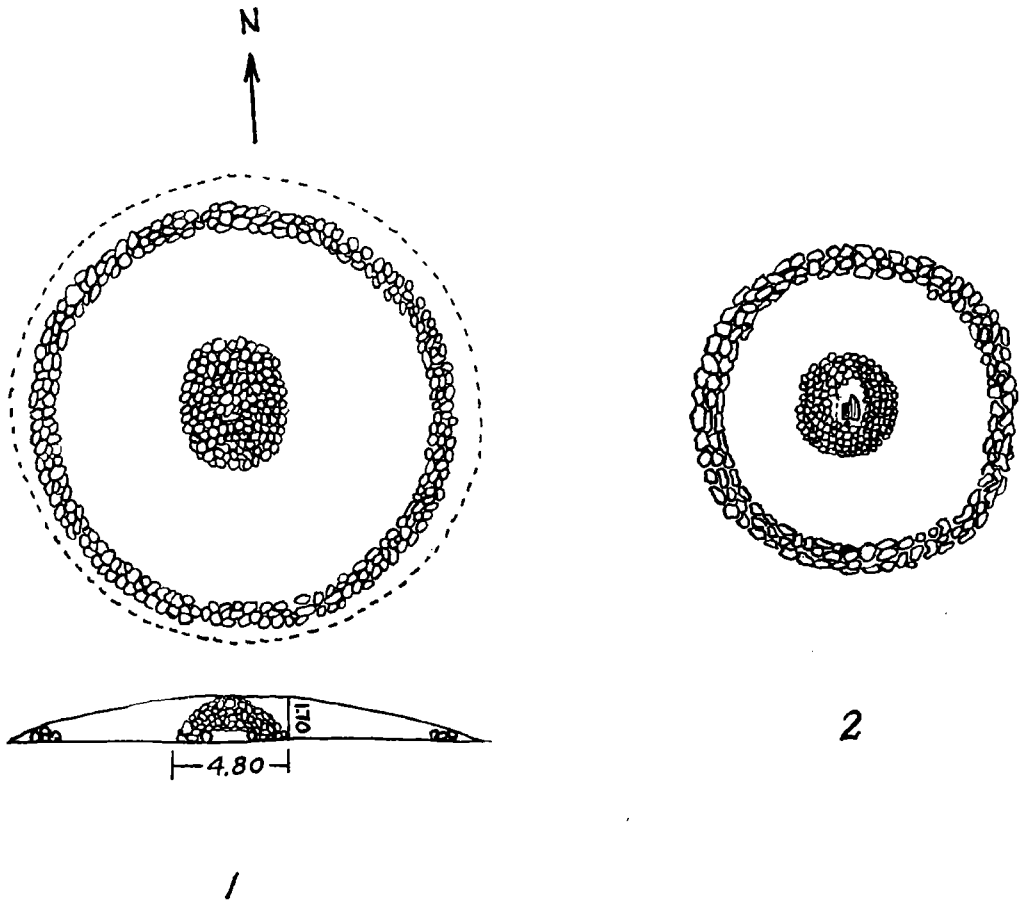


FIG. 190. Plans and section of tumuli surrounded by a stone wall and a pyramidal stone construction in the middle. **1**, Smoszew near Krotoszyn, western Poland; **2**, Winklarn, lower Austria, tumulus No. 3. *After* Durczewski, 1933 (**1**) and Willvonseder, 1937 (**2**).

that corpses were kept in the open for many days. The coffin was covered either only by earth, by a vault of stones, or by a stone cist built of vertical flat stone slabs; above this whole structure a barrow of earth, sand, or stones was piled and surrounded by a ring or several rings of stones. The elaborateness of the tomb and the number of graves under one barrow varies. The largest tumuli and the richest men's graves must have belonged to the chieftains. One or two graves to a tumulus was usual, but there are instances where the members of a whole family were probably buried together. A man's and woman's, presumably husband's and wife's, graves frequently occur under one barrow. There is evidence, as from the earlier periods, of the forced incarceration of a woman (the wife?) and children together with the dead man. In one tumulus of the Klings cemetery, district of Bad Salzungen, Thuringia, a man killed with bronze arrowheads (one was found in his back) was accompanied by a woman, a youngster, and a small child (Feustel, 1958, No. 51).

The deceased was laid to rest in an extended position, a custom which becomes dominant during this period and which seems to be connected with the common use of tree-trunk coffins. Earlier, in the Únětician and the expansion times, a contracted position was usual and only royalty or chieftains had the privilege of burial in the extended position. Inhumation was not universally used, however; in all of the groups cremation was also practised. There are many instances where both an inhumation and a cremation burial were placed in one grave, and in the same cemetery cremation and inhumation graves appear side by side (Richthofen, 1926, pp. 7-8). Cremation graves imitated inhumation graves; stone cists as at Burk near Bautzen (fig. 192) or imitations of elongated rectangular cists were used.

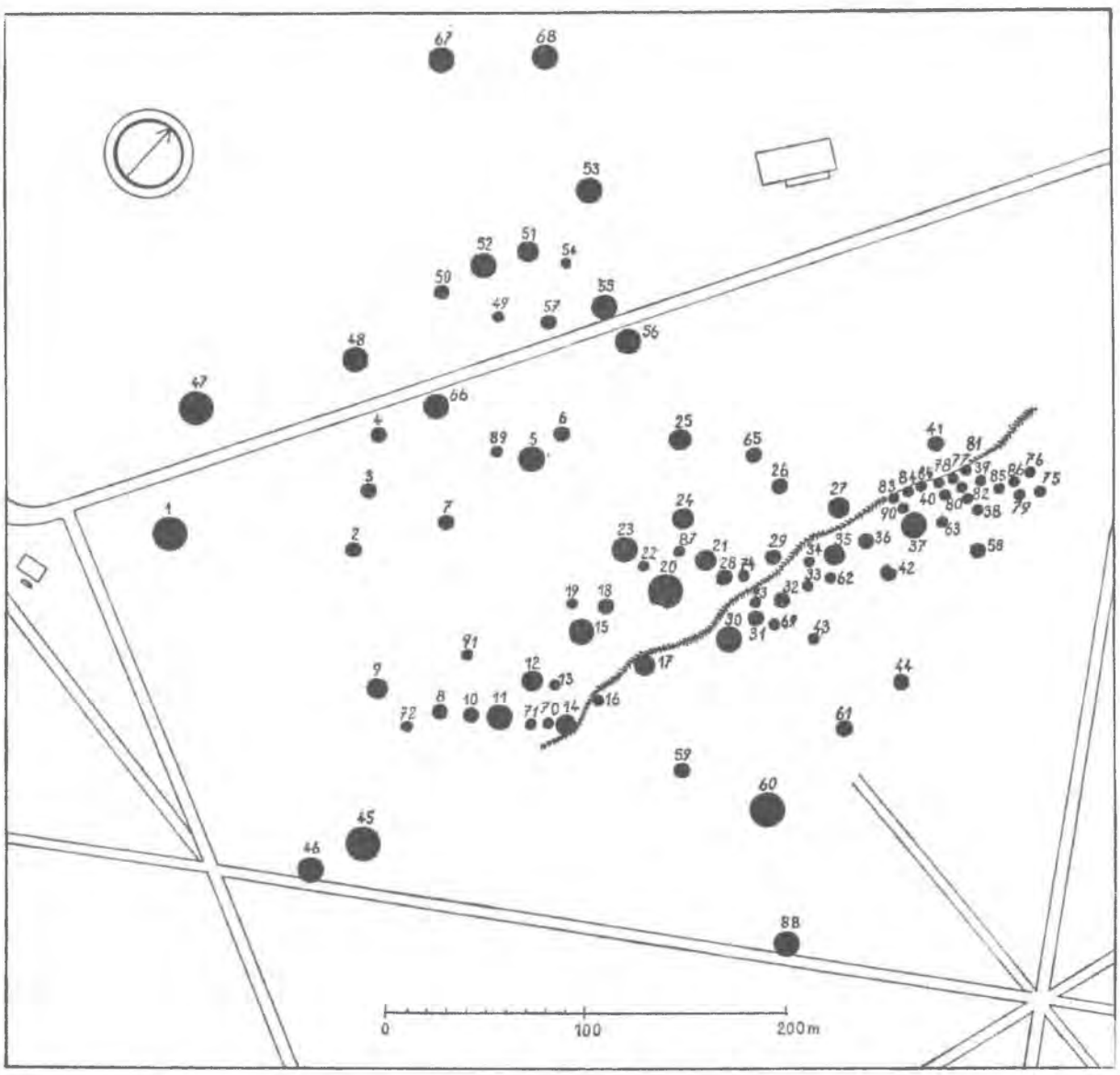


FIG. 191. Plan of the Tumulus cemetery at Hájek near Šťáhlavy, district of Plzeň (Pilsen), Bohemia, drawn by F. X. Franz between 1878 and 1880. Tumuli date from the fourteenth century B.C. (end of B_1 and B_2), from the twelfth century B.C. (small tumuli concentrated on the eastern side of the cemetery belonging to the Milaveč group), and a small group dates from the Hallstatt and La Tène period. *After* Jílková, Rybová and Šaldová, 1959.



FIG. 192. Early Lusatian cremation grave in a stone cist.
Burk cemetery near Bautzen, Saxony.
After Frenzel, 1929.

A wealth of ornaments was found in a great many women's and men's graves. Pins, bracelets, arm-rings, breast ornaments, bead necklaces, and finger-rings were extremely popular, and indicate a true prosperity of the people. Men's graves, in addition to pins, bracelets, and ornamented plates or pendants, usually contained swords, rapiers, daggers, axes, knives, sickles, and razors. Several examples of grave equipment are illustrated below: a man's or woman's grave from Bohemia (fig. 193); a woman's grave (pl. 52); and a man's grave (pl. 53) from Thuringia. The person from the cemetery of Hájek near Plzeň was furnished with two long pins with small disc heads and geometrically decorated necks placed at the shoulders (fig. 193, *1*, *2*), a bronze spiral and amber bead necklace (fig. 193, *3-5*), a breast ornament made up of sacred ivy-leaf pendants (fig. 193, *6*), four bracelets – two banded and horizontally ribbed and two made of a thin round wire and decorated with clusters of striations (fig. 193, *7*), spiral pendants ending in spiral plates which probably were attached to cloth or to the belt (fig. 193, *8*), six toe-rings made of bronze bands (fig. 193, *11*), and two vases placed at the feet (fig. 193, *9*, *10*). The woman in a grave from the cemetery of Schwarza wore a lunula-shaped collar of bronze plate adorned with spiral motifs and amber beads and a breast ornament made of eight rows of bronze spirals which were, at intervals, separated by small amber beads. The breast ornament was attached, at the ends, to two pins with wheel heads. On the right arm she wore an arm-ring ending in spirals coiled in opposite directions, and on both arms were spiral arm-rings (pl. 52; fig. 194, left). Hundreds of small round plates, tutuli or spiral tubes are usually found on the breast and waist area, sometimes with fragments of cloth, probably remains of a thong on which plates, tutuli, and tubes were sewn (cf. schematic reconstruction fig. 194, *right*). Long pins with spectacle-shaped double-spiral heads probably held the head cloth, since they were found at the skull (fig. 194, *right*).

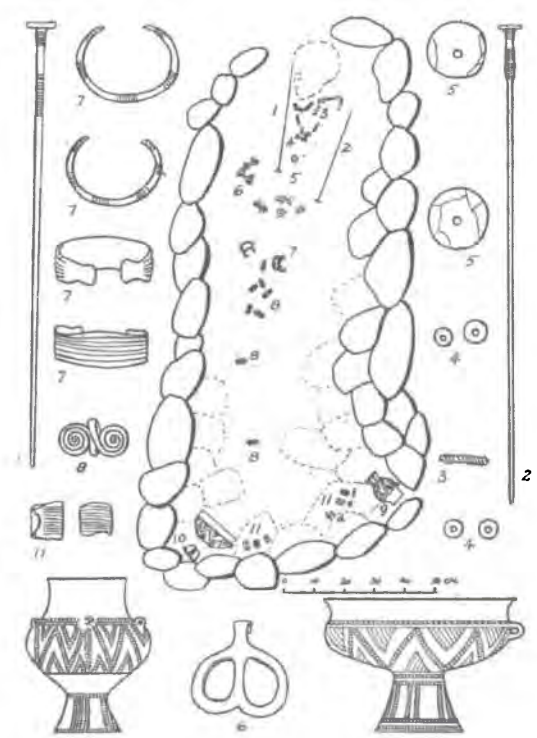


FIG. 193. An inhumation grave and its inventory from the cemetery of Hájek near Štáhlavy, district of Plzen (Pilsen), Bohemia. Tumulus No. 30, grave II. **1, 2,** pins; **3,** bronze spirals; **4,** small amber beads; **5,** large amber beads; **6,** sacred ivy-leaf pendants of bronze; **7,** bracelets; **8,** pendants with spiral plate ends; **9, 10,** footed vases; **11,** toe-rings. Scale of bronzes and pots approx. 1/4. *After* Jílková, Rybová and Šaldová, 1959.



FIG. 194. Reconstruction of central European Tumulus women's apparel with ornaments on the basis of finds in Schwarza, Thuringia (tumulus No. 2, graves 12 and 13). *After* Feustel, 1958.

Amber beads were very frequent. They were used for separate necklaces, made of biconical, variously sized beads (pl. 54) and were used as spacers for breast ornaments. Spacers with complicated perforations continued to be used (Hachmann, 1957a). Blue glass beads were found in a number of cemeteries in Austria, Germany, and Silesia (fig. 195, *14*). They were used for the decoration of collars, necklaces, and chest ornaments (pl. 52, *left side of the collar*). Although the blue glass beads found in Middle Bronze Age cemeteries and hoards have not yet been analyzed, one can surmise that they came from the workshops of blue glass in the northern Tyrol near Schwaz since it has been proven that this was the origin of the Early Urnfield blue glass beads in Austria (Neuninger and Pittioni, 1959).

Fragments of woolen material preserved under the bronze ornaments make possible an approximate reconstruction of women's dress. The skirt is presumed to have been long. The blouse was either sleeved or sleeveless. It was not sewn together at the shoulders, but was pinned with large pins with wheel-shaped heads (see the dress reconstruction of the Schwarza women: fig. 194). In front the blouse was sometimes covered by a thong with spirals, plates or tutuli sewn on it. The spiral arm-rings and armlets with spiral ends were covered from the inside with soft sheep leather and a horn plate. The belt was made either of wool or of leather sometimes covered with a bronze plate. A long head-cloth or kerchief made of fine wool was fastened at the shoulders with double-spiral head pins (fig. 194, *right*). In other cases, remains of fur cloaks were found in women's graves, as they were in men's, their edges trimmed with a cord plaited with bronze wires. In addition to the head scarf, there were head decorations made either of amber beads and bronze spirals with a large amber spacer in front (cf. fig. 194, *right*) or of woolen bands adorned with bronze tutuli.

Men's clothing is far less well documented. The long pins, usually with small disc heads and smaller

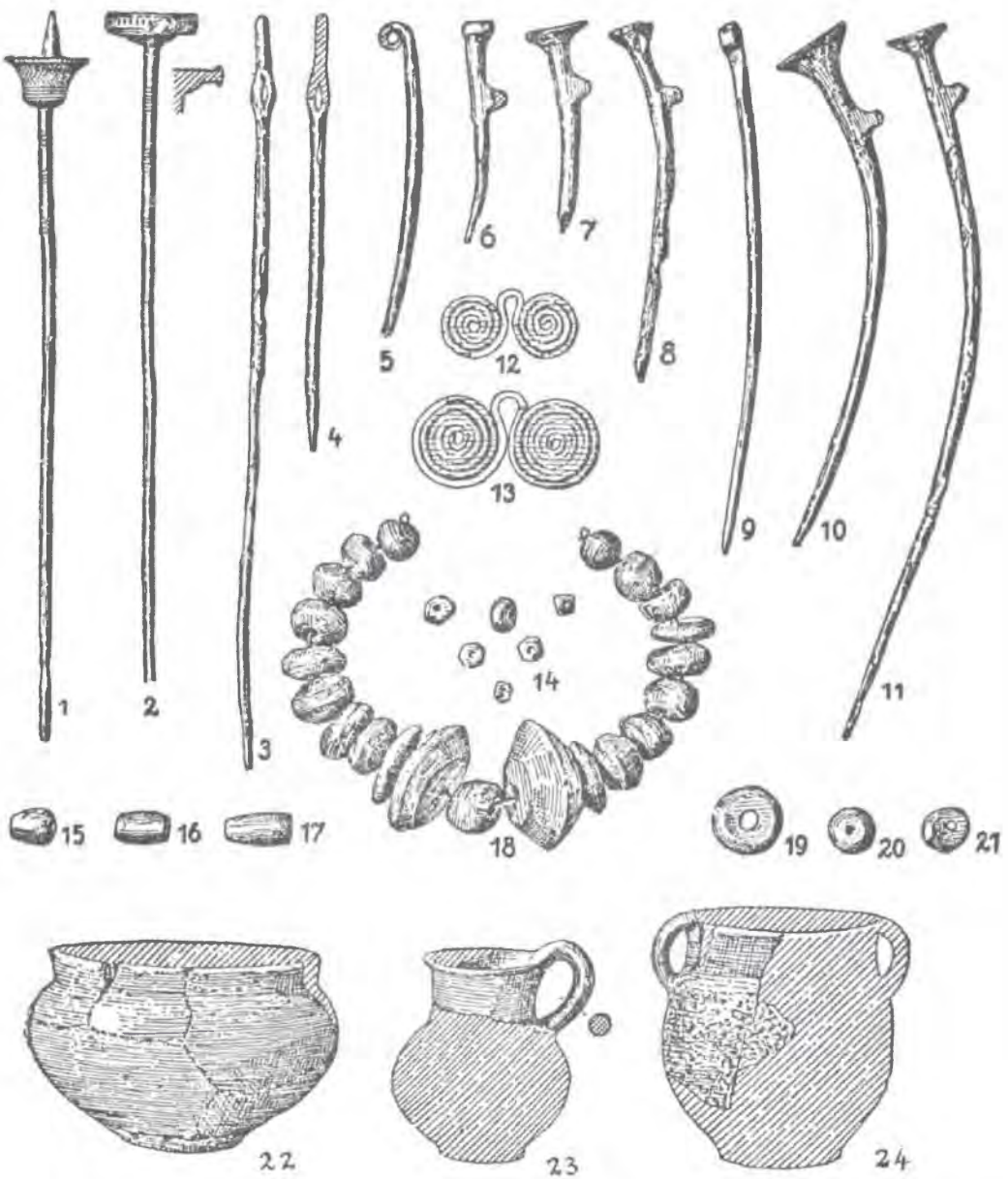


FIG. 195. Finds from the early Lusatian cemetery at Kruszyniec (Juppendorf), Silesia. **1-11,** pins; **12, 13,** double-spiral pendants; **14,** blue glass beads; **15-21,** amber beads; **22-24,** pottery. **2, 5, 7-9, 18,** grave No. 1; **1, 3, 4, 10-17, 19-21, 23,** grave No. 2; **6,** grave No. 3; **22, 24,** grave No. 4. Scale: 1/2, pots approx. 1/6. *After* Tackenberg, 1927.

geometrically decorated necks (pl. 53, *2-4*) always found in men's graves at the shoulders, indicate the existence of cloaks. Knives, daggers, and swords were fastened to the belts. Bronze arrowheads, spearheads, sickles, razors and axes were placed at the side, usually at the head. Toe-rings made of ribbed bands suggest that open sandals were worn.

The fragments of woolen materials preserved through oxidation of bronze ornaments and weapons show highly developed techniques of spinning and weaving. Clothes and scarves from the graves of the Fulda-Werra group in Thuringia were analyzed by specialists (Feustel, 1958: articles by Schlabow and Hundt). Vertical looms were used, as shown not only from loom-weights, but also from the preserved woven selvedge edges of woolen cloth. The prepared sheep's wool was about the same as that used in



FIG. 196. Early Lusatian pins and their head ornament (top views). Scale approx. 1/2. *After* Richthofen, 1926.

present-day villages. Two different kinds of materials were made: a standard cloth woven of loosely spun threads, and a very fine material, used for scarves and belts, woven of threads strongly twisted and even spun from specially prepared long sheep's hair.

Women's dresses and ornaments were not uniform, even in the same cemetery. Between separate Tumulus provinces differences were even greater, as can be seen in ornament, especially pin, forms. In the western Tumulus provinces pins with wheel-shaped or double spiral heads, and those with small disc heads and swollen necks dominated, but in the Lusatian area in eastern Germany and western Poland, other kinds developed. At the end of the Middle Bronze Age the Lusatians used about ten different kinds of pins, and each type had a series of variants. The basic types were pins with disc heads and loops (fig. 195, *6-8*, *10*, *11*), "spindle-pins" with a spike (figs. 195, *1*, 196, *6-8*), pins with a rimmed button-head (figs. 195, *2*; 196, *2-5*), pins with barrel-shaped heads of various proportions (fig. 196, *1*), pins with a small spiral head (fig. 195, *5*, *9*), and shepherd-crook pins. The upper part of the pin was geometrically decorated, the ornament usually being parallel or zigzag lines. The round tops of pins had a characteristic solar or star emblem done in magnificent variety. There are concentric circles (fig. 196, *3*, *5*), interconnected spirals (fig. 196, *4*), four-, five-, or six-armed swastikas (fig. 196, *8*), and very frequently an arched design forming a star motif in combination with concentric circles (fig. 196, *6*, *7*). Amber beads (fig. 195, *15-21*), double-spiral pendants (fig. 195, *12*, *13*), banded bracelets with geometric decoration, spiral arm-rings, and gold spiral rings appear in about the same forms over the whole of the Tumulus area. The gold for these ornaments was traded in great quantities in the form of plaited wire, as we know from a number of hoards (cf. the hoard of Krupa in Bohemia: Richly, 1894; Benes, 1959, p. 65; Hradec Králové, Bohemia: Stocky, 1928, pl. XLI; gold in the Rhine group: Rieth, 1939).

Tools and weapons used between the Rhine and Vistula and between the Baltic Sea and the middle and lower Danube were of a fairly uniform character. The most common forms of tools were flanged and winged axes, socketed celts, palstaves, knives, and button sickles, the latter used by men and women. A dagger blade of a varying length with two or four rivet holes (pl. 53, *5*) was the usual equipment in a man's grave. There were also bronze-hilted daggers (Feustel, 1958, pl. XXIV, *3*). Flange-hilted swords

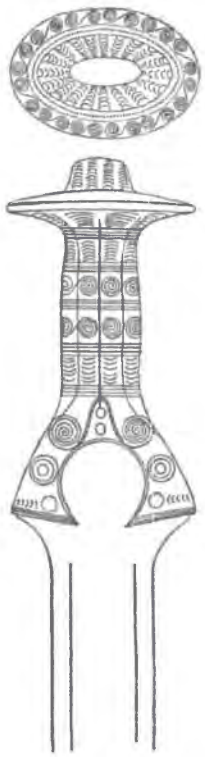


FIG. 197. Classical Tumulus bronze-hilted sword from Salzburg, Austria. Isolated find. Scale approx. 1/4. *After* Willvonseder, 1937.

were now of considerable length, nearly 80 cm long, with projecting and rounded shoulders (fig. 45, *1*; pl. 53, *1*). The Třebivlice type swords were usually no longer than 45-65 cm. Bronze-hilted swords were also much longer than their fifteenth century predecessors. Their hilt and pommel were decorated with spirals, concentric circles, semicircles, dots, and divided into bands by horizontal lines (fig. 197). The double-spiral motif, as on the specimen illustrated in figure 197, is repeated on many swords and on ornaments. The best parallels to this are spiked cross-shaped ornamental plates from Pitten, lower Austria (pl. 55, *3-7*), discovered at a woman's neck and pelvis in association with 11 spiked circular plates with concentric decoration (pl. 55, *1*, *2*), two large pins with disc heads and a thick neck, spiral rings, clay beads, and a pot (Willvonseder, 1937b, Taf. 29, *1*, *2*, *5-10*).

Short swords or rapiers were used concurrently with flange- and bronze-hilted swords. The inspiration for their origin could have come in the fourteenth century B.C. from Greece, but the central European specimens do not seem to be imitations of Mycenaean ones, which had hilts and projecting hand guards (fig. 44); the central European specimens rarely had a pronounced guard. The blade and the wooden handle were connected by two, four, or more rivets (pl. 56, *1-3*); the earliest types, dated to middle Tumulus period, usually had two or four large rivets (cf. the rapier from tumulus I of Malnice, district of Louny, Bohemia: pl. 15, *1*). Rapiers were of different proportions and length, some over 40 cm long (pl. 56, *1*).

The warrior's equipment of swords, rapiers, daggers, bronze arrowheads, and spears was completed by wooden shields. Traces of such were noticed in the cemetery of Mehrstetten in Württemberg. The shields were round, approximately 80 cm in diameter, and were studded with bronze bosses in a cruciform pattern (Childe, 1929, p. 298, with reference to Prähistorische Blätter, 1906, p. 50). Although this was a basically peaceful period, there was no disarmament. Further wars and expansion to the south were probably continually in the minds of the warrior class.

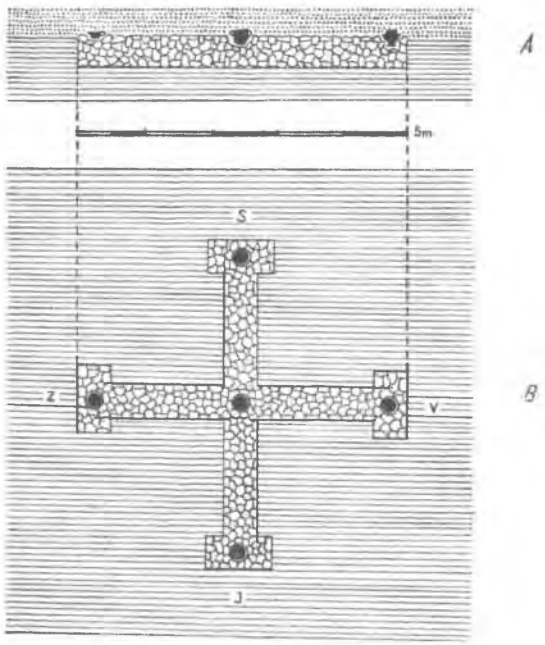


FIG. 198. *A*, section and *B*, plan of the offering place at Černčin, district of Bucovice, Moravia. *After* Hruby, 1958.

The pottery was generally covered with black, brown, or red slip. The main shapes were large bulging vessels with cylindrical necks, amphorae with small handles, jugs, cups, goblets mounted on a high foot, bowls with handles under wide rims, and other bowls with a rim turned up into four peaks. The potter's cache from Maisbirbaum in lower Austria well exemplifies the repertory of pot shapes of the middle Danubian group. This hoard, in addition to the usual shapes of jugs (pl. 57, *9*), vessels with cylindrical necks (pl. 57, *10*, *12*) and amphorae (pl. 57, *11*), included very elegant jugs with a widening neck and a narrow waist (pl. 57, *4*) and jugs with bosses at the four corners of the base (pl. 57, *2*, *3*). This depot contained also a number of bowls with one (pl. 57, *1*, *5*, *6*) or two handles (pl. 57, *7*) and a footed goblet provided with a small handle (pl. 57, *8*).

The probable solar symbolism which appears in magnificant variety on the heads of pins and sword pommels and hilts is present on pottery also. The hanging striated triangles around the shoulders of amphorae (cf. pl. 57, *11*), which can be traced back to Chalcolithic Corded pottery, bosses encircled with concentric lines and dots (pl. 57, *8*, *9*), and the circular depressions from which rays emanate which decorate the bases of bowls or cups (pl. 57, *1*, *5*), cannot be anything else but sun symbols.

An offering place in Černčin, district of Bucovice, Moravia, made of stones in the shape of a Greek cross, is probably also related to a sun cult (discovered in 1924; described by Hrubý, 1958). The structure was paved with stones. The crossarms were 2.5 cm long and their ends were about 1 m wide (fig. 198). In the center and at each end of the crossarms an amphora, a footed vessel, a dish, and a bowl were placed (see the section: fig. 198, *A*; four pots were well preserved, the fifth was lost).

Various offering places seem to have served different purposes. One discovered in 1945 at Viničné Šumice near Brno took the form of a depression 30 cm deep and 60-70 cm in diameter (Hrubý, 1958). At its eastern end stood an amphora filled with burnt wheat grains, and at its side lay a disc of baked clay, a dish, and fragments of a big vase and cups. The pit was full of ashes and its sides were baked. This place could have been a repository of offerings for Mother Earth.

A third sacrificial area was found at Uhersky Brod, also in Moravia, in 1901(Hrubý, 1958). This was a pit 70 meters square. At a depth of 60 cm lay the skeleton of an ox. Its skull was surrounded by stones

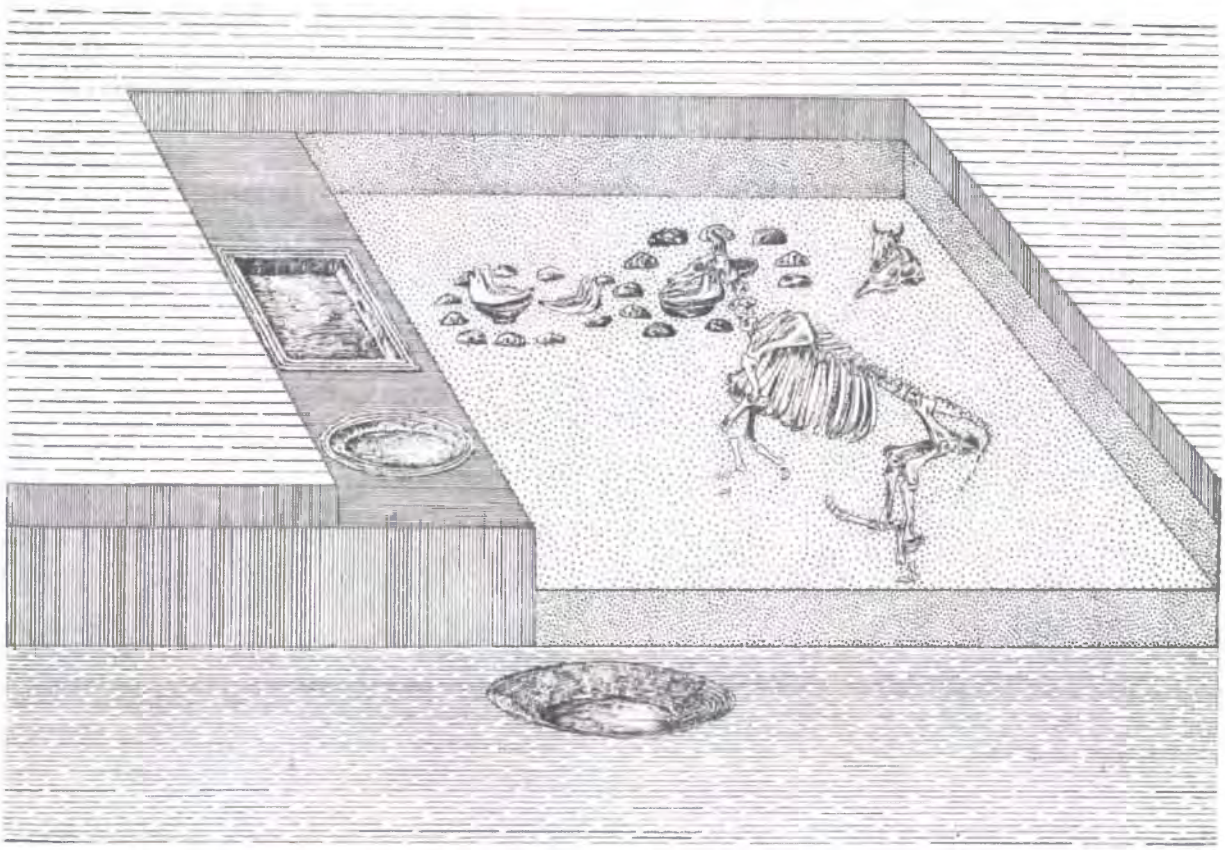


FIG. 199. A reconstruction of a sacrificial place at Uherský Brod, Moravia. *After* Hruby, 1958.

and under the skull were two boat-shaped dishes standing on flat stones. On the right side of the skeleton were fragments of skulls and, on the left, a heap of mandibles of oxen or cows. They partially covered a footed vessel which lay deeper in the ground and was surrounded by stones (fig. 199). On the western side of the pit was a round pit about 50 cm deep and 1 m in diameter with baked walls. North of it, but not so deep, lay a smaller pit in the shape of a dish, decorated with three concentric ridges, and a rectangular pit (fig. 199, *left*). Both pits show traces of white-painted clay. Many small vessels and sherds, some zoomorphic, lay around them.

ii. *The Piliny group in the upper Tisza basin*

The name "Piliny" is derived from a fortified hill village at Piliny near Nógrád, northern Hungary. The name designates a cultural group in northern Hungary and eastern Slovakia (Eisner, 1933, pp. 297 ff.). Piliny refers to a culture formed of Tumulus and Otomanian elements, its earlier phase carrying the name Egyek. It differs from Tumulus proper in its individual ceramic style, in the universal use of cremation, and in larger density of population.

The stratigraphic position of the Piliny horizon is illustrated by the Barca site of eastern Slovakia which was primarily an Otomanian site (layer II and lower horizon of layer I), and was conquered by the Tumulus people (upper layer I). In the top layer (upper layer I) refuse pits with ceramic remains typifying the Piliny assemblage were discovered. Nearby lay an urnfield, called Barca II, consisting of 72 cremation graves, which yielded a fairly large amount of Piliny pottery, sacred ivy-leaf pendants, a pin, golden hair-rings, and amber beads (Jílkova, 1961). Some graves were marked by thin stone slabs (pl. 58, *2*). The usual type of urn was bulging or piriform, with a cylindrical or slightly conical neck and

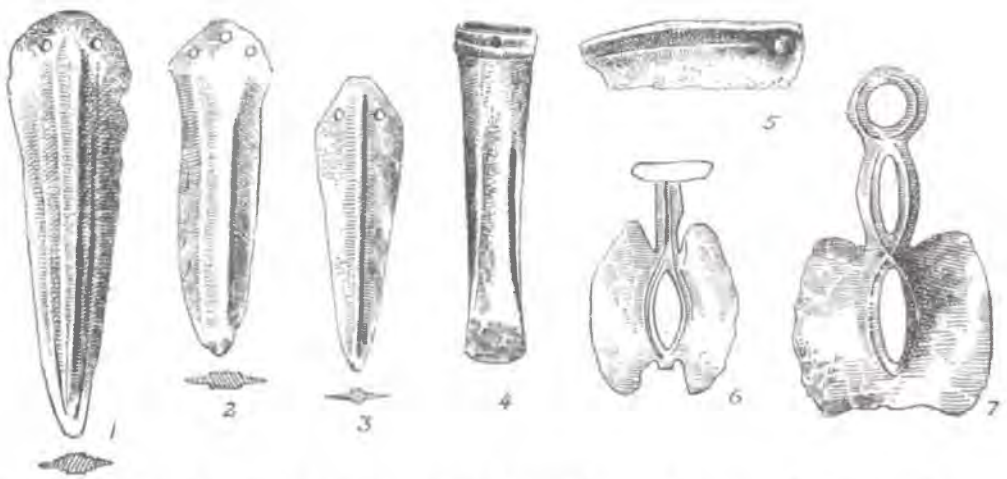


FIG. 200. **1-3**, dagger blades; **4**, chisel; **5**, button sickle; **6, 7**, razors from the cemetery of Nagybátony, northern Hungary Scale approx. 1/3. *After* Patay, 1954.

flaring rim (pl. 58, *3-5*). Some had small handles between the neck and belly or just under the belly (pl. 58, *1*, *3*, *5*), but in other cases the handles were large and joined the mouth and belly (pl. 58, *4*). The small warts on the shoulders (pl. 58, *4*, *5*) and bosses around or below the belly (pl. 58, *1*, *3*) were decorative; they recall the baroque Otomani spiral-boss-decorated pottery. The urns were usually covered with dishes. Jugs were also decorated with small warts, grooved semicircles, or vertical and horizontal lines.

The cemeteries of Zagyvapálfalva on the Zagyva river near Salgótarján (Hillebrand, 1926), and of Nagybátony, located on the eastern edge of the Zagyva valley at the foothills of the Mátra Mountains are important sites for this phase in the northern part of Hungary (Patay, 1954). The cemetery of Nagybátony consisted of over 1000 graves, of which 953 have been excavated. Among the grave furnishings were elongated and triangular dagger blades (fig. 200, *1-3*), socketed chisels (fig. 200, *4*), double-edged razors (fig. 200, *6*, *7*), button sickles (fig. 200, *5*), pins with convex disc heads and a loop connecting the head with the stem (fig. 201, *4*, *5*), thick pins with a swollen upper part and a small conical or button head (fig. 201, *1*, *2*, *7*, *8*), bracelets round in cross-section with tapered (fig. 201, *9*, *10*) or overlapping ends (fig. 201, *11*, *12*), slightly ribbed bracelets, spiral arm-rings, sacred ivy-leaf pendants (fig. 201, *16-18*, *22*), double-spiral pendants (fig. 201, *19*), convex ornamental plates (fig. 201, *21*), finger-rings (fig. 201, *13*, *14*), M-shaped tweezers, spirals, and other objects. Pottery finds comprised large piriform urns (fig. 202, *4*, *5*), jugs (fig. 202, *1*, *2*, *6*), and bowls (fig. 202, *3*), decorated with small warts or bosses and sometimes with incised horizontal, vertical, or diagnonal lines.

The largest cemeteries so far excavated are located near the metalliferous Carpathian mountains. Metallurgy in this area is indicated by numerous moulds (cf. Hampel, 1887, p.. III, *2*; pl. IV, *2*) and by workshops (cf. Hampel, 1887, pl. CXIV). It appears that here was one of the most vigorous metallurgical centers of central Europe. Perhaps this explains the reason for a particular concentration of people in this area; cemeteries of the size of Nagybátony apparently did not exist in earlier periods. In addition a great many isolated finds have been made. Hoards seem more numerous here than in any area of the Tumulus proper region. The bronze weapons, tools, and ornaments found in hoards were generally similar to those of the hoards of the middle and upper Danube area, but they had a local character. Typical objects from the Piliny hoards are spiral wrist-guards, a great many sacred ivy-leaf pendants, spiral arm-rings with large spiral plates at the ends, local pin types, and other ornaments. The hoard from Forró, district of Abaúj in northern Hungary, should be mentioned here; it comprised a bronze-hilted

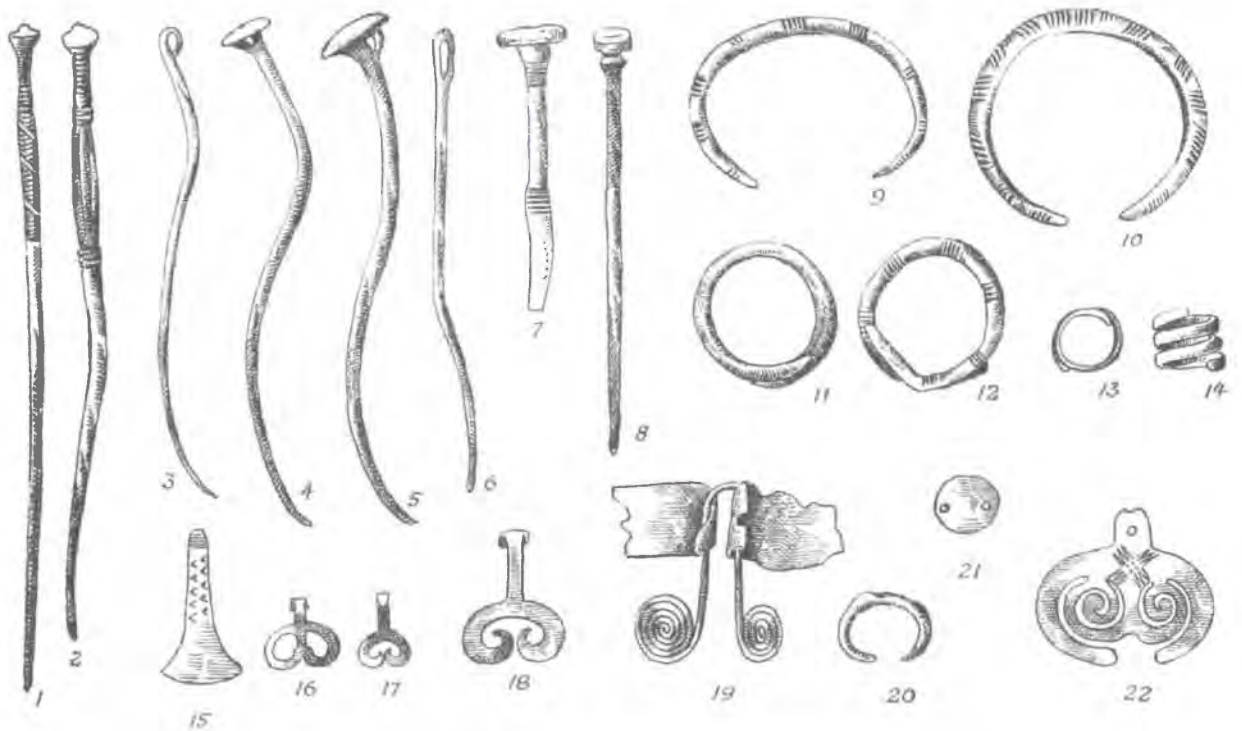


FIG. 201. Ornaments from the cemetery of Nagybátony, northern Hungary. **1-8,** pins; **9-12,** bracelets; **13, 14,** spiral finger-rings; **15-20, 22,** pendants (**19,** attached to a belt plate); **21,** convex plate.
Scale **1-14** approx. 1/3; **15-22** approx. 1/2. *After* Patay, 1954.



FIG. 202. Pots of Piliny type from the cemetery of Nagybátony, northern Hungary.
Scale: **1, 2** approx. 1/3; **3-5** 1/6; **6** 1/5. *After* Patay, 1954.

sword (fig. 203, *1*), a pin with a flattended-spherical head and three swellings on the neck decorated with vertical and diagonal striations (fig. 203, *2*), a wrist-guard (fig. 203, *3*), and a long spiral arm-ring ending in spiral plates (fig. 203, *4*). The wrist-guards and spiral arm-rings are holdovers from the preceding period, but in this period, the latter were made of a narrower band than those belonging to the Koszider assemblage. The hoard from Załęże, located north of the Carpathians near Jasło in Galicia

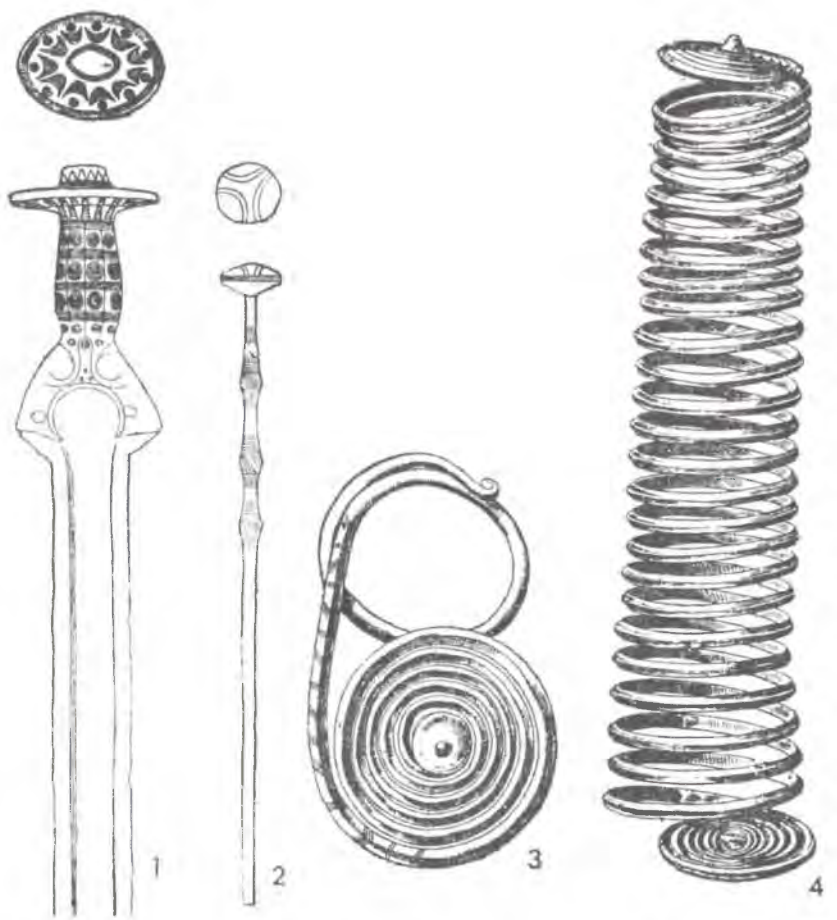


FIG. 203. The hoard from Forro, district of Abauj, northern Hungary. **1,** bronze hilted sword; **2,** pin; **3,** wrist-guard; **4,** spiral arm-ring. Scale: **1, 2,** approx. 1/4; **3, 4,** approx. 1/3. *After* Åberg, 1935.

(fig. 204) should be attributed to about the same period. It contained a spiral arm-ring (fig. 204, *1*), bracelets with tapered ends (fig. 204, *2*), sickles (fig. 104, *3*), sacred ivy-leaf pendants (fig. 204, *4*), fragments of tutuli (fig. 204, *5*), and wrist-guards (fig. 204, *6*).

Who were the Piliny people, whose burial rites and pottery differed considerably from those in the Tumulus proper area? Were they perhaps Otomanians conquered by the Únetice-Tumulus people around 1400 B.C.? These people were clustered south of the Carpathians where they explored the very rich copper mines in the slopes of the Carpathian Mountains. In the fourteenth century B.C. they seem to have become an important separate branch of the central European cultural realm.

3. *The Urnfield period, from ca. 1250 B.C. to the beginning of the Iron Age*

From the second half of the thirteenth century B.C. cremation was almost universal in central Europe; even chieftains were cremated. Urns came into use as containers for ashes, giving rise to the name "Urnfield".

The beginning of the Urnfield period does not designate a marked change of culture, for cremation was not unknown before and its wide use does not represent a new religion. A gradual transition from inhumation to cremation occurred, and although larger cemeteries indicate an increase of population,

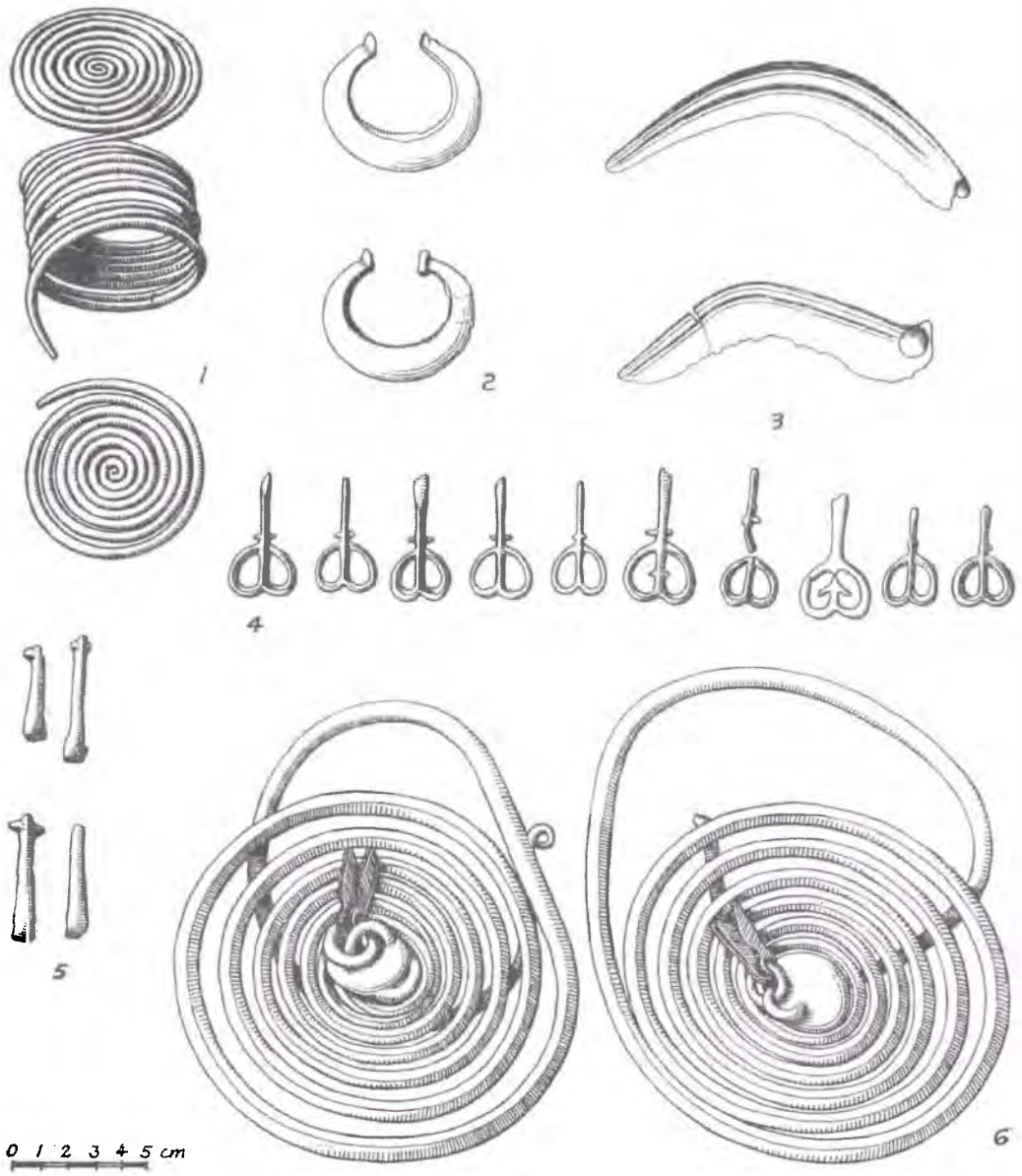


FIG. 204. Hoard from Załęze, near Jaslo, southern Poland. **1,** spiral arm-ring; **2,** massive bracelets with tapered ends; **3,** button sickles; **4,** sacred-ivy-leaf pendants for belt decoration; **5,** pendants, probably also for belt decoration; **6,** wrist-guards. *After* Kraus, 1956.

this increase had been noticeable from the Early Bronze Age onwards. I do not think that agriculture had diminished greatly by the Middle Bronze Age as Childe posited (1929). On the contrary, the bronze sickles were invented during Únětice times and after that gained more and more widespread usage. There are no signs that farming declined and that the population turned to pastoralism; offerings of wheat probably to the fertility goddess as attested to in the Middle Danube group of the Tumulus culture do *not at all* reflect a predominantly pastoral character of the population. Farming and herding were *equally* important in the Middle and Late Bronze Ages. Sites are found in the fertile valleys and in the upland and forested areas. The founding of settlements along the foothills of the Alps and the Carpathians is probably connected with copper or salt mining. In both the Middle and Late Bronze Ages, villages were bound to their water supply, rivers or lakes, and were arranged on high riverbanks, hilltops, sandy elevations, or on islands.

It is very probable that the expansion during the Middle Bronze Age was not simply the result of a military manoeuver instigated by a warlike aristocratic class, but was desired by the farmers who wished to extend their territory over the most favorable lands for agriculture in the Middle Danubian Plain.

Nor did the beginning of the Urnfield period mark a revolution in metallurgy. It was rather an evolutionary stage which brought about an increase in the use of bronze. Bronze hoards weighing thousands of kilograms never appeared before the Late Bronze Age. Sheet bronze was developed, bronze vessels and armor appeared, and the fibula (very likely a central European invention) was added to the list of ornaments. Bronze molds are also not in evidence in preceding periods. The hoard of Velím in Bohemia included a bronze anvil and three two-piece molds of bronze for palstaves (Stocký, 1928, pl. XL). Basic weapon, tool, and ornament forms were inherited from the earlier period. Swords, rapiers, daggers, socketed celts, winged axes, and sickles have their origin either in the Late Únětice or in the Tumulus period.

Total confusion about the Central European culture has been created by the assumption that the Tumulus culture did not continue into the Urnfield period. This view was propagated by Childe in his Danube in Prehistory (Childe, 1929), and for more than thirty years debate about the problem of the Tumulus-Urnfield continuity was sealed by his authority. He excluded the Tumulus culture from the Central European cultural sequence and regarded it as a foreign culture which had nothing to do either with the Únětice or with the Urnfield groups. His theory that the Tumulus people were herders who lived in the uplands, and that the Úněticians and the Urnfield people were farmers who lived in the fertile river valleys, is not supported by actual finds. Tumulus and Urnfield settlements are found in the same places. This is proven stratigraphically (i.e., Čaka, western Slovakia: Točík and Paulík, 1960; Buchau, Württemberg: Reinerth, 1936, p. 119). Childe presumed, however, that the Urnfield people were probably survivors of the Úněticians. Where then were the Úněticians hiding during the Middle Bronze Age?

Childe also believed that the "Lusatian incursion" played a decisive part in the formation of the Urnfield culture in the upper and middle Danube areas. According to this hypothesis, the Lusatian people conquered the Tumulus people and introduced cremation. The simultaneous existence and continuity of the Lusatian and Danubian groups was not admitted. However, cremation spread gradually before the Lusatian culture emerged and was used universally in northern and eastern Hungary before the Urnfield period.

The available Late Bronze Age material from central Europe, which comes from thousands of sites, indicates an unquestionable Tumulus-Urnfield continuity of culture. The Urnfield people occupied the same territory as those of the Tumulus culture (see the distribution of the Tumulus and Urnfield sites: fig. 205). Habitat, economy, social structure, burial rites, religious ceremonies, warrior's equipment, and women's and men's attire do not indicate any abrupt changes. The greatest change of the new epoch was the expansion: to Greece, Italy, Anatolia, and futher on to the eastern Mediterranean area.

The local groups which existed were the same in the Middle and Late Bronze Ages, but their differences gradually increased. During the Urnfield period, the divisions among individual groups became clearer; as many ceramic styles existed simultaneously as might dialects of a widespread language.

During the Urnfield period in eastern Germany and in western Poland, the Lusatian group, which can now be called classical Lusatian, continued, but it extended its southern border, as exemplified by Lusatian sites now found in northwestern Bohemia and northern Moravia. In the middle Danube area, in lower Austria, southern Moravia, western Slovakia, western Hungary, and northern Yugoslavia, another group called Velatice existed in Moravia and Baiersdorf in Lower Austria. I shall follow here the suggestion of Říhovský (1958) in naming this group Middle Danubian. East of it, in eastern Hungary and eastern Slovakia, the Piliny or Tisza group continued but was labeled Gáva or Mohi during the Late Bronze Age. Another large part of the Urnfield culture lived north of the Alps and can be divided into local groups: Upper Austrian-Bavarian, the central-German, and the Knovíz group in



FIG. 205. Distribution of central European Tumulus and Urnfield culture during the Middle and Late Bronze Age. Map shows the more important sites mentioned in the text.

Key to Fig. 205:

1. Drajna de jos
2. Velika Vrbica
3. Gusteriţa
4. Spălnaca
5. Târgu Mureş
6. Suseni
7. Apahida
8. Moigrad
9. Hajdúböszörmény
10. Egyek
11. Rákoczifalva
12. Varşand
13. Sajó Gömör
14. Piliny
15. Komarov
16. Wimsbach
17. Buchau
18. Žatec
19. Houstka
20. Kurim
21. Hradec Králové
22. Buch
23. Želiezovce
24. Boiu
25. Zajta
26. Săcueni
27. Oroszipuszta
28. Békes-Várdomb
29. Pecica
30. Bilisits
31. Bogárzó
32. Kelebia
33. Lovas
34. Vukovar
35. Toszeg
36. Barca

37. Forró
38. Nagybátony
39. Zagyvapálfalva
40. Rákospalota
41. Alsónémedi
42. Pusztaszentkirály
43. Dunapentele-Kosziderpadlás
44. Simontornya
45. Rácegres
46. Ráksi
47. Keszthely
48. Vyškovce
49. Sv. Peter
50. Nitrianski Hrádok
51. Majcichov
52. Dunajská Streda
53. Uherský Brod
54. Černčín
55. Vinične Šumice
56. Přitluky
57. Maisbirbaum
58. Regelsbrunn
59. Leobersdorf
60. Grosshöflein
61. Illmitz
62. Sauerbrunn
63. Pitten
64. Winklarn
65. Gmunden
66. Asenkofen
67. Aschering
68. Mehrstetten
69. Bühl
70. Hammer
71. Schwartza
72. Hájek
73. Nová Hospoda
74. Vrhaveč
75. Krupá
76. Velká Dobrá
77. Netovice
78. Tachlovice
79. Nová Ves
80. Malnice
81. Třebivlice
82. Burk
83. Pątnówek
84. Jordanów
85. Masłów
86. Obrath (Obrót)
87. Smoszew
88. Kruszyniec
89. Namslau
90. Załęże
91. Jaworze Dolne
92. Stefkowa
93. Klempenow
94. Stecklin
95. Babbin
96. Kurcewo (Krüssow)
97. Smogolice (Bruchhausen)
98. Rościęcino (Rossenthin)
99. Redzikowo (Reitz)
100. Gross-Mugl
101. Ptuj
102. Osijek
103. Čungar
104. Ripač
105. Zecovi
106. Donja Dolina
107. Hrustovač
108. Crvena Stijena
109. Debelo Brdo
110. Glasinac
111. Podgor'any
112. Aranyos
113. Zsujta
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115. Mohi
116. Mezöcsat
117. Czorvás
118 .Rimavska Sobota (Rimaszombat)
119. Komjátna
120. Vyšný Sliač
121. Čaka
122. Očkov
123. Velatice
124. Cezavy
125. Podolí
126. Klentnice
127. Hövej
128. Drassburg
129. Rothengrub
130. Unter-Radl
131. Baierdorf
132. Stredokluký
133. Weissig
134. Cosswig
135. Grossenhain
136. Schweinert
137. Pfeffingen
138. Unterglauheim
139. Winklsass
140. Riegsee
141. Etting
142. Hötting
143. Volders
144. Unteraching
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150. Mužla

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Franconia and in the upper Elbe basin in Bohemia. The Knovíz was in the center and had contacts with the Middle Danubian, Lusatian, and the Austrian-Bavarian groups. Actually, it is very close to the Middle Danubian group. In the west, there was a separate Urnfield realm covering the Rhine basin with extensions over eastern France, Belgium, and the Netherlands. All of them have distinct pottery styles and, to some extent, ornament and tool shapes, but the basic elements of the culture were still the same from the Rhine to the Vistula: The settlement pattern, the habitat, the burial rites, and many other elements connected with religion and social structure were about the same in all groups and chronological phases of the Urnfield culture.

The Urnfield village type did not change much from that of the Tumulus, Únětice, and even the Corded periods. Usually, villages were on hilltops, elevations near rivers, or on islands, and were chosen with a view to defense. Traces of fortifications exist in many places. A number of hilltop sites were found surrounded by two or three earthen ramparts, some with wooden constructions inside.

There are not many totally excavated villages, but among them are the fortified island settlements in the peatbog of Federsee at Buchau in Württemberg and in Buch near Berlin. The Buchau site was inundated by water and thus preserved for posterity. Pottery and bronze objects discovered in both settlements indicate that they belonged to the last century of the second and the beginning of the first millennia B.C. The Buchau village belonged to the western (Rhenish) Urnfield group, the Buch to the Lusatian group.

Buchau was excavated between 1920 and 1928 (for the details of this well preserved settlement, the reader is referred to the handsome monograph by its chief excavator, Reinerth, *Das Federseemoor*, 1936, second edition). The village was on the island of the Federsee Lake, surrounded by several lines of palisades (fig. 206). The outer palisade was built of about 15,000 upright pine stakes, 8-9 m long, stuck in the lake mud to about 3 m depth. The thickness of this pile fence was from 0.6 to 3 m. It totally encircled the village but had towered entrances in the northeast and southwest. Several defense towers were arranged on the western side and one on the eastern (fig. 207). The inner palisade was a single line of piles built only where the outer ring, due to shallow water, was about 40 m from the island; in this



FIG. 206. Plan of the Late Bronze Age settlements at Buchau, Württemberg. **1,** stakes forming outer and inner (single line) palisades; **2,** shore slope; **3,** outlines of earlier houses; **4,** outlines of later houses; **5,** bridges; **6,** dug out canoes. *After* Reinerth, 1936.

inner palisade there was also a gate. The palisades were joined with the island by seven bridges, but from the outside the village could be reached only by means of rafts or canoes. During the excavations, three canoes and many paddles were found, indicating extensive communication by water. The bank of the island was fortified by a stone or timber pavement and its northern side by several lines of piles.

The first village of Buchau consisted of 37 one-room houses, measuring only about 4 by 4 m square and of one larger house divided into two rooms (fig. 206, *hatched houses in the plan*). The excavator's guess is that the population was no more than 200 persons. The larger house (fig. 208, *A* and *B* center) probably belonged to the head of this well-organized community, in which the houses differed in size and structure, some being solidly built of horizontal logs (pl. 59, *2*) and some of upright posts and wattle and daub walls (pl. 59, *1*). The latter is presumed to be the earlier type and is met throughout all the Bronze Age periods in central Europe. So far, log cabins are not in evidence from earlier periods of this culture,



FIG. 207. The outer palisade with the towered entrance from the southwestern side. Reconstruction, Buchau village. *After* Reinerth, 1936.

but Otomanians used to build log cabins in the middle of the second millenium B.C. (cf. fig. 134). The whole village seems to have been built primarily for defense purposes, and the bronzes date it to the eleventh century B.C. (*Urnfield III*).

The later village had a completely different character. The small houses of the first settlements had superimposed on them U-shaped houses usually divided into three rooms (fig. 206, *plain houses in the plan*). Next to the dwelling house stood a granary and a stable. On the whole there were nine farms of various sizes; the biggest covered 110 square meters. The length of the wings of the dwelling houses was between 9.5 and 11.40 m, the width from 2.6 m to 3.5 m. The dwelling and farm houses were built of horizontal logs, but the inner walls of the dwellings were of wattle and daub. In two of the three rooms were hearths, placed close to the walls. One farm house was double-sized, had six rooms and a porch with open walls in the center, and is not unreasonably called a chieftain's house (fig. 209 *A* and *B*).

The later village in Buchau undoubtably belonged to a normal farming community. In granaries were found storage vessels filled with grain, sickles and quern stones; in other parts of the site deerhorn hoes and hammers appeared. Several species of wheat, barley and millet have been identified. There were also broad beans, peas, and poppy seeds. Flax was cultivated. Apple trees were grown. In addition, the Buchau people of both phases collected wild strawberries, raspberries, blackberries, hazelnuts, water nuts, and acorns. They hunted deer, boar, and elk and fished profusely, as is shown by many clay net sinkers and fishbones. They kept cattle, sheep, goats, horses, pigs and dogs of the wolfhound breed.

Wooden axles and cart wheels indicate the use of vehicles, and numerous horse bridle bits show horse riding. Among bronze winged axes, celts, spears, bracelets, pins, and knives with wooden handles scattered over both villages, a chain of bronze rings, presumably currency, was found. The Buchau village was finally destroyed by fire. Its defense system with palisades and towers, and the general character of the village, is strongly reminiscent of Biskupin in western Poland, a famous Early Iron Age fortified island village of the Lusatians dating from the sixth and fifth centuries B.C.

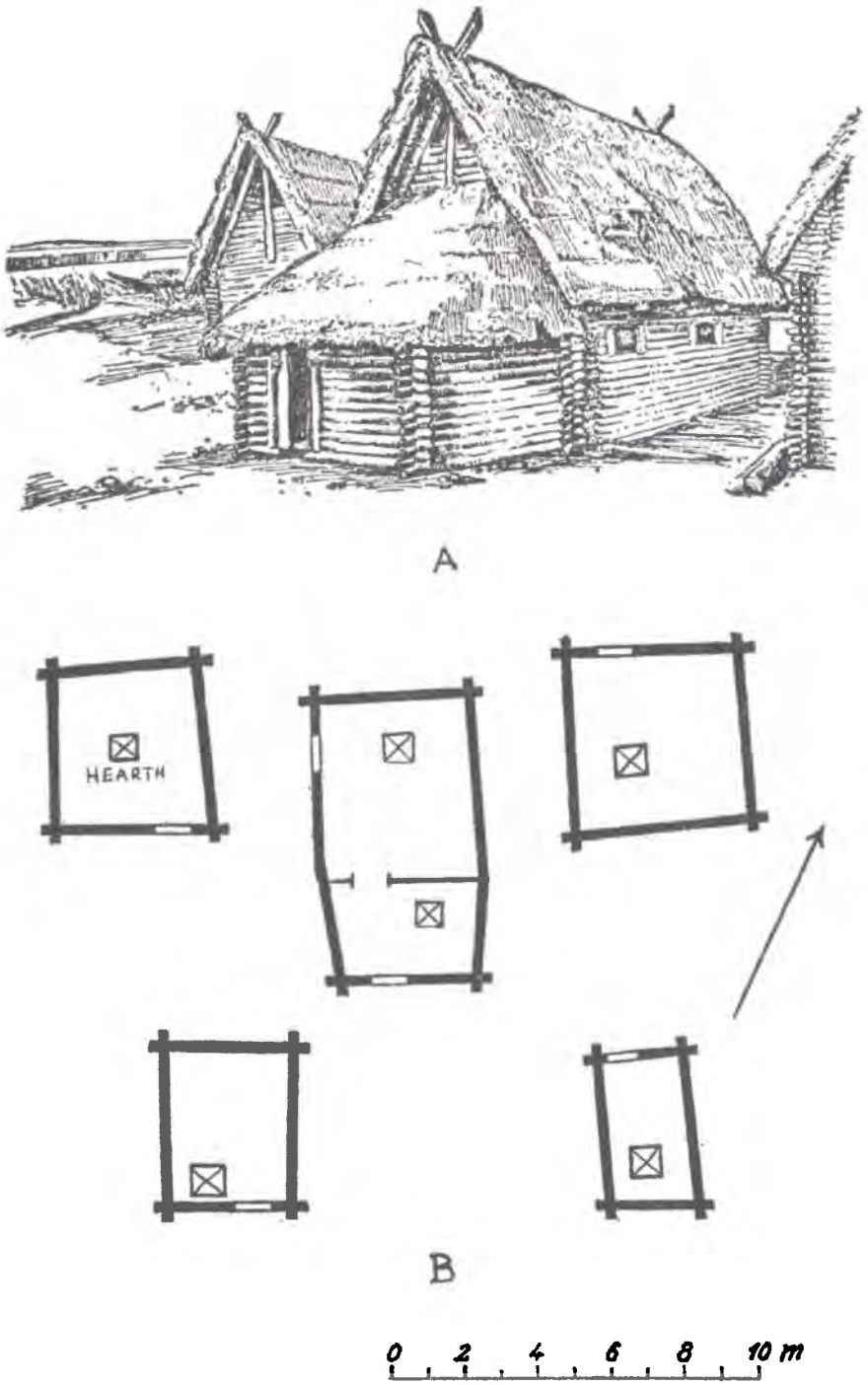


FIG. 208. *A*, reconstruction of the "chieftain's" house; *B*, group of small houses surrounding the "chieftain's" house. The earlier village of Buchau. *After* Reinerth, 1936.

The 1907 excavations of the village at Buch near Berlin also yielded important details (Kiekebusch, 1911). The habitation site was situated on a sandy elevation surrounded by meadows, swamps, brooks, and lakes. Occupation of the village had been uninterrupted for several centuries; house remains show several building periods. Potsherds, found in hearths and waste-pits, were chiefly late Lusatian, but some were of the earlier boss-decorated classical Lusatian type. Houses were irregularly placed and oriented

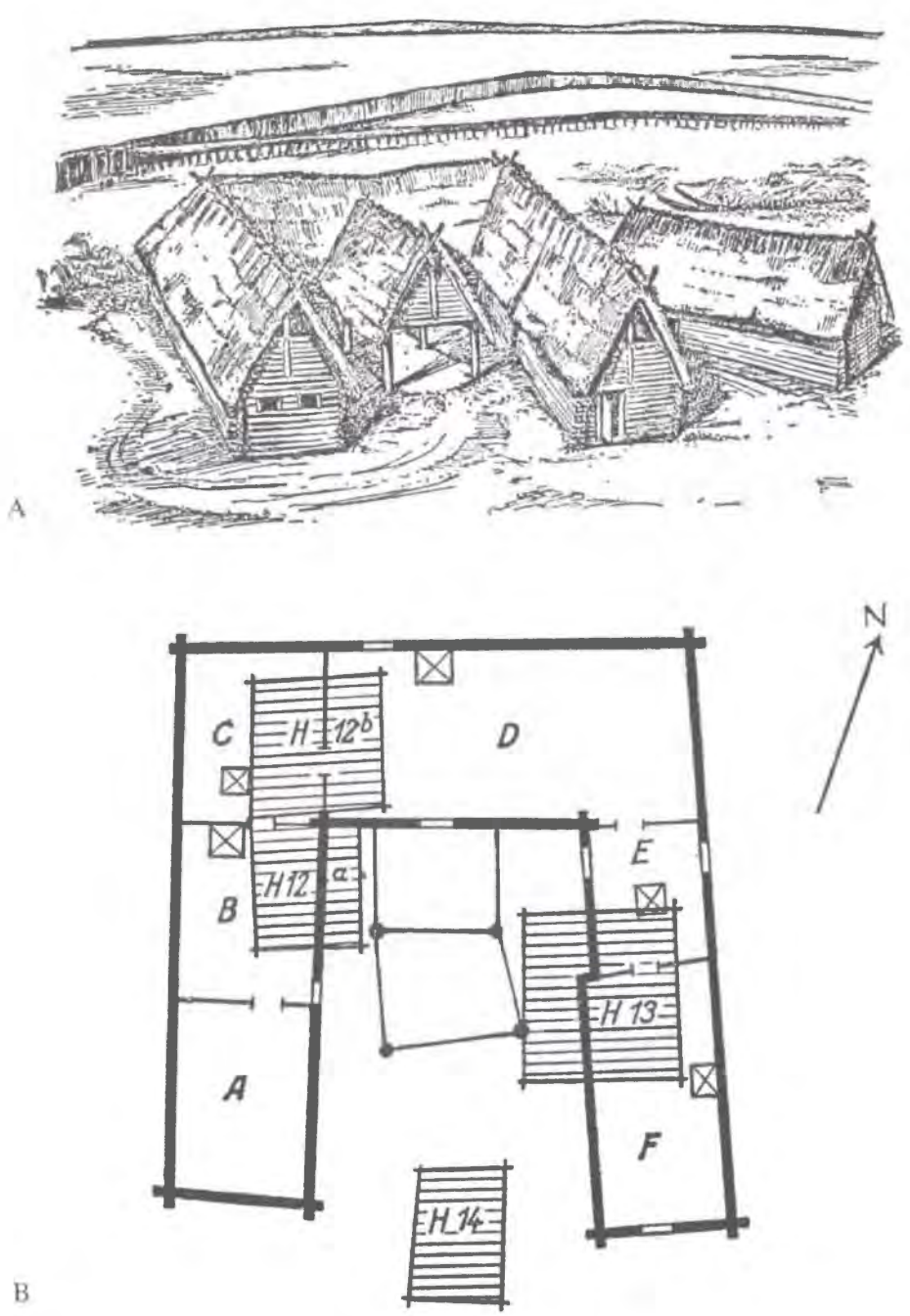


FIG. 209. Second village of Buchau. *A*, reconstruction and *B*, plan of the "chieftain's headquarters". *After* Reinerth, 1936.

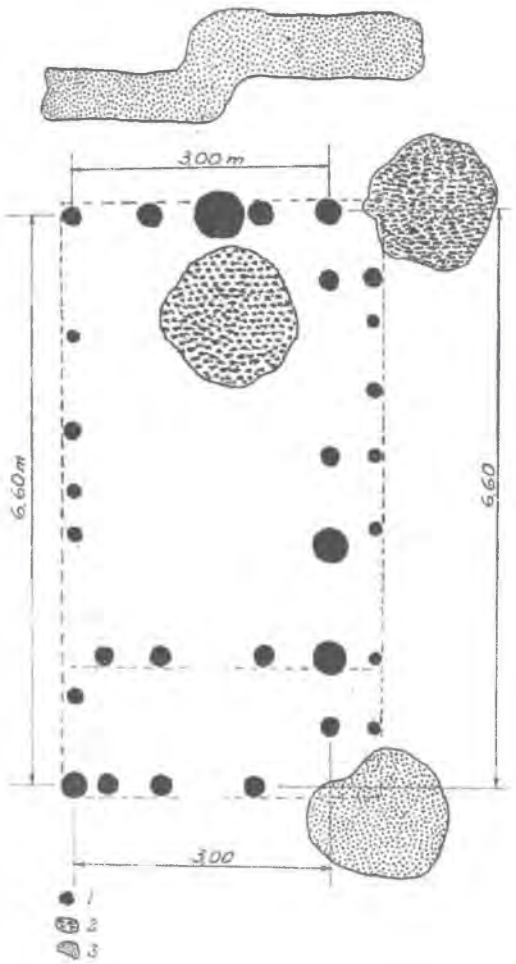


FIG. 210. Plan of a Lusatian house from the village at Buch near Berlin. **1**, pits for posts; **2**, hearths; **3**, refuse pits. *After* Kiekebusch, 1911.

in different directions all over the 160,000 square meter area. In one part of the village, however, beside a house of the usual type, eight small huts were built in a row and equidistant from one another. No trace of houses was found in the center of the village, but there were many hearths and animal bones. A large part of this central area was covered with a layer of organic substance, chemical analysis of which showed the presence of animal ashes mixed with blood and fats, from which the excavator concluded that some kind of structure in which animals were kept stood on the spot. It is also possible that this was a place for sacrifices and meetings.

The larger houses usually consisted of two rooms, one big room and an anteroom. In some instances, the anteroom lacked a front wall. The hearth, either in a pit or built up of stones and clay, was, as a rule, placed close to one of the walls in the bigger room, thus saving space. In the hearths were numerous split and roasted acorns, potsherds, and loom-weights. The wall construction could be seen from traces of postholes for vertical posts (fig. 210), remains of horizontal logs, and fragments of clay with which the walls were daubed. The vertical posts stood about 1 m apart. Horizontal logs placed one above the other joined the vertical posts and were fastened with branches, some impressions of which show on the pieces of clay. In several cases, traces of thresholds suggest the presence of a door. In one of the houses, along the wall of the main room, the remains of a clay bench or bed were found. Inside the big room stood a large storage jar. Around every house were discovered one or more waste-pits 1 to 4 m across

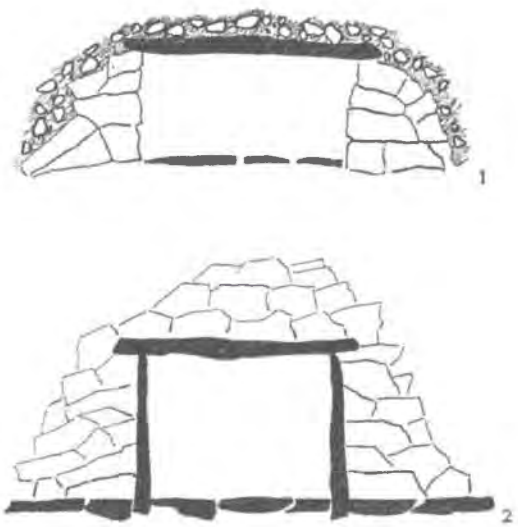


FIG. 211. Cross-sections of grave chambers built of stones and thin stone slabs from the urnfield at Volders in the Inn Valley east of Innsbruck in Tyrol. *After* Kasseroller, 1959.

and up to 2 m deep, containing animal bones, sherds of kitchenware, broken tools, acorns, etc. Bone, horn, and stone tools and objects, among them bone arrowheads, some in lanceolate form, a rhomboid perforated stone axe, horn hoes, a cheek-piece from a bridle made of antler, a bronze knife, fragments of pins with rolled up heads, and clay figurines of animals and birds (ducks, pigs, salamanders, and other kinds of quadrupeds) were found.

The habitation sites held little metal. Antler, bone, and stone implements were used profusely in everyday life; bronzes occur chiefly in hoards and workshops. This indicates that metallurgy was concentrated in special centers near the copper mines, and that bronzes were distributed by trade, as they were during the Tumulus and Únětice periods.

The cemeteries in which urns surrounded by accessory vases appear are the most numerous remains of the Urnfield period. There were one to several to a grave; frequently, smaller pots were found inside the larger ones. In rich graves 10 to 20 or even hundreds of pots appeared; some of them containing provisions for a future life. Careful examination of graves has shown that burial, even in the same cemetery, differed to a certain degree. Normally, an urn was covered with an inverted dish or bowl and around it were laid vases of various shapes and sizes, but in some cases there were no accessory pots. In another part of the burial, part of the cremated bones were placed in an urn, and the rest was put around it, or in a pit. In many graves there were no urns at all, and the cremated bones were found on the bottom of grave pits or stone cists. Grave chambers built of stones or large stone slabs frequently occur in the North Alpine or Middle Danubian Urnfield group (fig. 211). They also appear in the Lusatian area alongside the pit-grave type. Pits, if not lined with large stones or slabs, had timber linings. In exceptional cases, remains of timber huts were discovered.

The inner walls of the stone cist graves were sometimes engraved. A thin slab from the Urnfield II cemetery at Illmitz in Burgenland, lower Austria, had a large hole in the middle, above which was a concentric circle design: the upper part was divided into five bands by incised horizontal lines and filled in with zig-zags (pl. 60). The aperture in the slab must have been made as part of the burial rites, probably to allow the soul to leave the mortuary house. Analogies for this custom are known in the Caucasian and Globular Amphora stone cist graves during the Chalcolithic period. In the Lusatian area, the urns of the Late Urnfield occasionally had round holes with pieces of clay which fit into them. This custom reappears in later prehistoric times; Early Iron Age house-urns had a hole in the gable, and

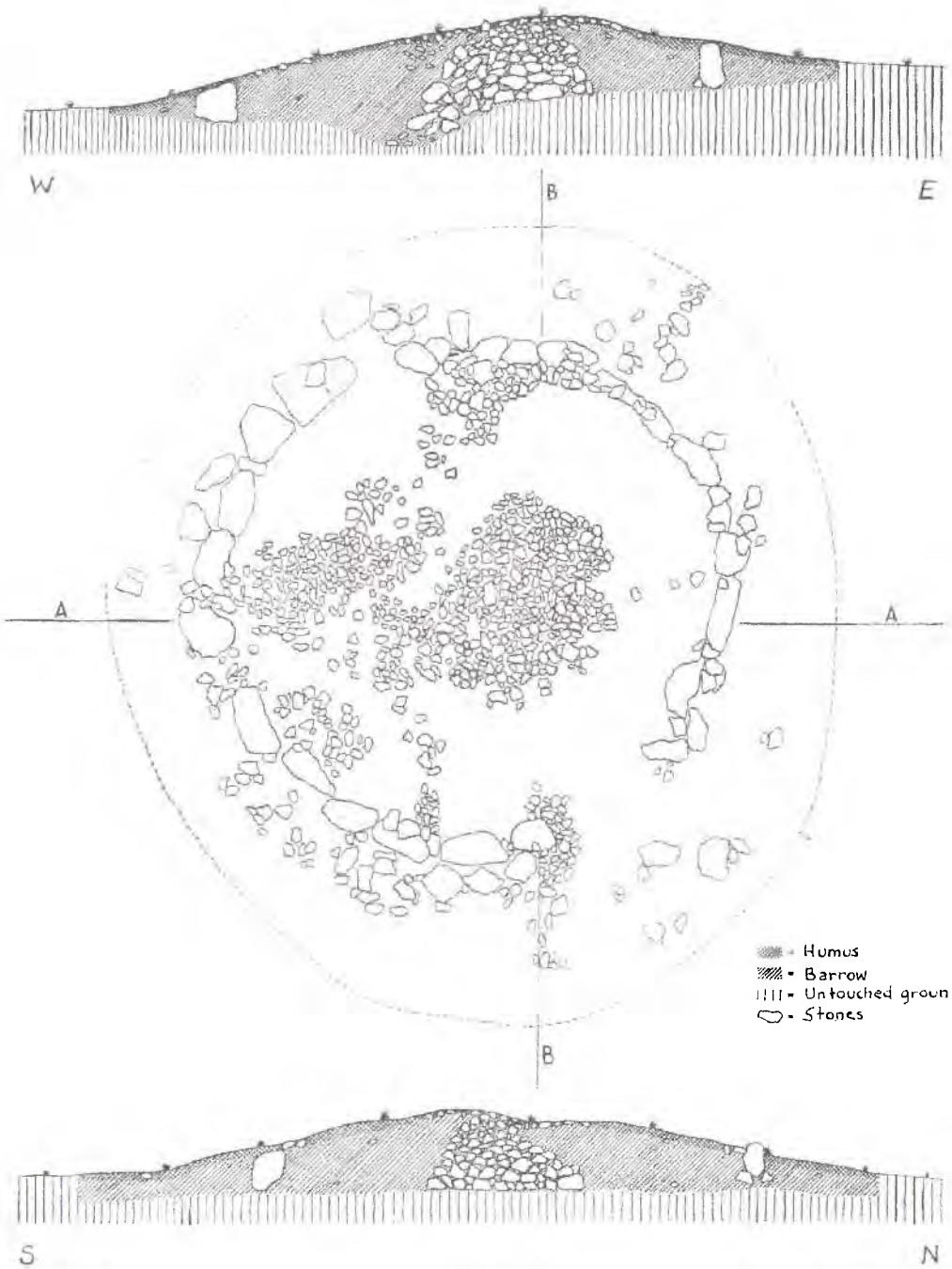


FIG. 212. Plan and cross-section of a barrow from the Lusatian cemetery of the Urnfield III phase. Sachsendorf, Saxony. Scale 1:100. *After* Coblenz, 1951.

the caps of the face-urns had a small hole in the middle. The belief in the departure of the soul through a vent-hole, popular in the nineteenth and twentieth century, is undoubtedly a lingering tradition from prehistoric times.

From the above it is seen that the Urnfield people, in their building of tombs for the dead, continued the house-grave idea held in the Chalcolithic and earlier Bronze Age periods. They piled stones and earth above the graves (fig. 212) and erected a tombstone on top of the barrow. In many cases, barrows were surrounded by a retaining wall built of stones (pl. 61). The Urnfield people were definitely tumulus

builders; it was because urns are found at a considerable depth, sometimes 2 m or more deep, and low barrows in most instances were destroyed in the course of two millennia, that it was believed that their graves were flat.

In normal cremation graves, bones occur without ashes, indicating that bodies were cremated outside the cemetery. In several cemeteries, actual traces of crematoria were found. In Gubin, Silesia, the crematorium was made of clay plaster surrounded by lumps of clay and stones on three sides. Above it, were cremated and uncremated bones and a layer of ashes 20 cm thick mixed with large pieces of charcoal (Jentsch, 1886). The excavations of the largest urnfield in North Tyrol (with 431 graves) at Volders in the Inn Valley east of Innsbruck brought to light four crematoria outside the cemetery, at its eastern, southeastern, southern, and western edges (Kasseroller, 1959, p. 17). These were large fireplaces about 7 m long and from 2.5 to 4 m wide in specially prepared pits, 1 to 1.6 m deep. They were filled with ashes, charcoal, pottery sherds, cremated bones, and molten bronze artifacts. The one at the western end of the cemetery had stone plastered side walls. After the cremation, bones and bronze artifacts which were not completely destroyed by fire were sorted out and carried to the grave. In these instances, when the cremation had not been fully completed, it was possible to observe that the cremated bones were put into the urns or grave pits in anatomical order: the skull bones were laid together, then those of the spine, arms, and pelvis, with the leg and foot bones at the end. Offerings were made both during the cremation rites and during the burial in the cemetery. In the cremation fireplaces, sherds, calcinated bones of cattle, and calcinated grains of millet and lentil were found. In some of the Lusatian graves in Poland, bones of uncremated horses, swine, and birds appeared (Malinowski, 1962), which may be remains of funeral meals.

Although this period is called the "Urnfield" period, inhumation was not completely abandoned. The Knovíz group in central Bohemia and Franconia, for instance, left many inhumation graves (Spurný, 1950). Some Lusatian cemeteries in the lower Warta and Oder basin continued inhumation rites during the Urnfield II and later phases (Malinowski, 1962).

The burial practices described above pertain to the graves within the regular cemeteries of the Urnfield village communities. The larger cemeteries consists of hundreds of graves. Those such as at Volders, with 431 graves, were used throughout the Urnfield II through IV phases with almost no changes in burial rites.

As during the Únětician and Tumulus periods, graves of the Urnfield cemeteries can be divided into rich, less rich, poor, and extremely poor. From one hundred or more graves only one grave, that of a male, is usually distinctive in richness; it is furnished with elaborately made vases, a sword, a knife, a razor, a belt, and ornaments, including bronze, gold, glass, and amber artifacts. Many more graves belong to the "less rich" category, in which pots, a razor, a knife, and bronze pins, neckrings or bracelets are found. In female graves, bronze ornaments and pots appear. Burials of the third, or "poor" category, are the most numerous and contain only accessory vases and occasionally ornaments. Those graves in which only cremated bones are found are labeled "extremely poor".

There are also two grave types which do not appear in the regular cemeteries: royal tombs and mass burials. Tribal chieftains were cremated on a separate fireplace and buried in a separate place, on the spot of their cremation, in large chamber tombs, with great pomp and ceremony. The most impressive royal tombs of the early Urnfield period, those at Čaka and Očkov in southwestern Slovakia, will be discussed below, under the section devoted to the Middle Danube group. In a separate category are the mass burials of uncremated dead thrown into one pit and covered with stones; these mass graves may contain the remains of sacrificed prisoners of war. Such graves also do not belong to the regular cemeteries.

These categories of grave types apply to all Urnfield groups and to all phases of this period and reflect the following social stratification:

1) King or chieftain of the tribe;

2) Head of the village community;
3) Eminent people of the community;
4) Laboring class, including both well to-do-and poor people;
5) Prisoners.

The social structure of the Urnfield culture seems to have been basically the same as during the Únětice period. As yet there is nothing that proves that a class society existed.

The total number of bronze artifacts in graves varies in different Urnfield groups depending on how far they were located from the centers of metallurgy. The richest cemeteries are in the upper Tisza and the middle Danube basins. Ranking second are those of the upper Danube (Bavarian) and the North Alpine (upper Austrian) Urnfield groups. (In the cemetery at Volders, in the Alpine zone, the total number of bronzes was 370 from the 431 graves. Spectrographical analyses have shown that their composition included traces of lead, silver, antimony, arsenic, and bismuth which relate the copper ore to the mining area near Schwaz called Bertagrube [Kasseroller, 1959, p. 230; analyses made by Pittioni]). The cemeteries of the Lusatian group, being farther from the metallurgical centers than the above mentioned, boast only a few bronze artifacts.

The Urnfield period is usually divided into an early and a late phase. Both can be sub-divided into several subphases. The early Urnfield period covers Urnfield *I* and *II* and extends from the middle of the thirteenth century B.C. to the end of the twelfth century B.C. Late Urnfield covers Urnfield *III-V*.

The description below will be restricted to the early and late periods and to the three major groups: the Middle Danubian, the Tisza, and the Lusatian.

a. *The Early Urnfield period and the expansion to Italy, Greece, and the eastern Mediterranean area, from ca. 1250 to the end of the twelfth century B.C.*

Soon after the middle of the thirteenth century B.C., the second great expansion of the central European people started and resulted in a real upheaval in the Apennine Peninsula, the southern Balkans, Anatolia, and the whole eastern Mediterranean area. Before tracing the migrations of the belligerent central Europeans in the south, let us first see what the native culture was like.

If taken generally, the early Urnfield period can be regarded as a chronological unit. Neither burial rites, religious symbolism, nor the repertory of weapons and tools changed markedly within the period; though bronze artifacts, especially ornaments, underwent changes. One of the most diagnostic forms is the fibula. Urnfield *I* is characterized by symmetric violin-bow fibulae made with round wire (fig. 78) or figure-eight-bow fibulae (figs. 82, A; 1; 82, B; 1; pl. 21; 1); Urnfield *II* is distinguished by violin-bow fibulae, but with a flat bow and spiral catchplate (figs. 84, *1*; 86; 2, 5, 6), as well as by heavily ribbed bracelets (figs. 85; 2; 235; 3), poppy-head pins (fig. 89, *12*), and other finds. Urnfield *I* lasted from the second half of the thirteenth to the beginning of the twelfth centuries B.C. and is so dated by those central European bronze objects of this period found in association with Late Helladic *IIIB* (end) and *IIIC*$_1$ objects in Greece. The second, Urnfield *II*, occupies the remainder of the twelfth century B.C. to about the last quarter.

Urnfield *I* is the actual expansion period and is characterized by a massive weapon industry. More weapons than ornaments, especially spearheads, daggers, and swords are found; armor, helmets, shields, bronze horse gear, and bronze vessels also appear. Somewhere around 1200 B.C., bird figures (as parts of pendants and usually in association with sun wheels or rings) came on the scene, initiating the Urnfield art style which reached its culmination during the Late Urnfield period.

Urnfield *II* is a post-war period; a return to normal conditions and prosperity. This was a time of extensive metallurgy which produced gigantic hoards containing hundreds of sickles, socketed celts, axes, spearheads, bracelets, pins, fibulae, belts, bronze vessels, and other objects.

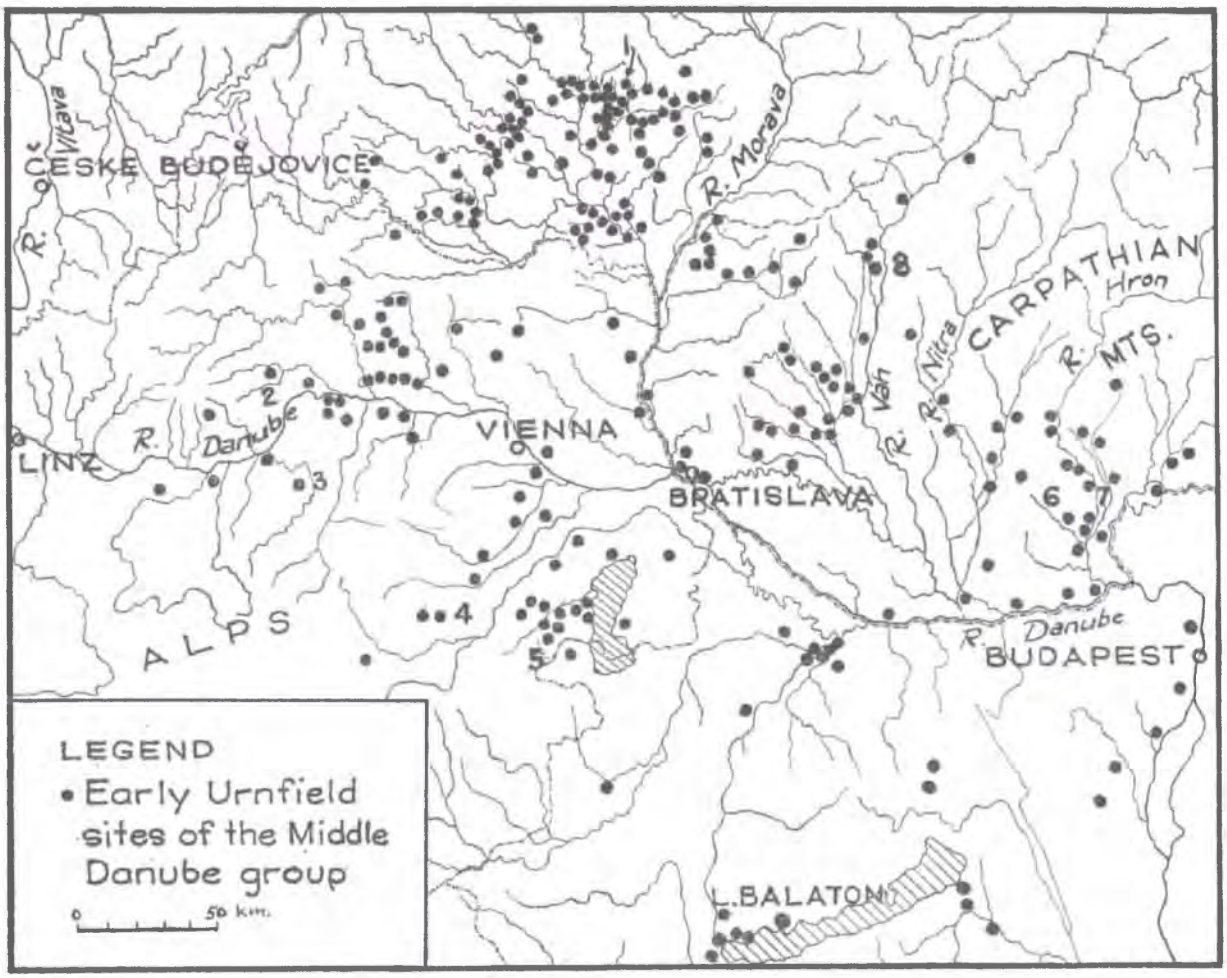


FIG. 213. Distribution of the Middle Danubian sites during the early Urnfield period. (Based on Říhovsky's map, 1958). Key: **1,** Velatice; **2,** Baierdorf; **3,** Unter-Radl; **4,** Rothengrub; **5,** Drassburg; **6,** Čaka; **7,** Želiezovce; **8,** Ockov. Sites in northern Yugoslavia west of the Danube pertaining to the same cultural group are south of the area shown.

i. *The Middle Danubian Group*

The Middle Danube group in lower Austria, northern Yugoslavia, western Hungary, southern Bohemia, southern Moravia, and southwestern Slovakia (fig. 213) was one of the most vigorous parts of the central European realm during early Urnfield times. Closely related to the Middle Danubian group was the Bavarian-upper Austrian group (also called Hötting-Morzg) and the Knovíz group in Bohemia. Actually, the relationship of these groups had not changed much since the Middle Bronze Age.

The Middle Danubian urnfields yielded extraordinarily rich graves and hoards. The type site for Urnfield *I* is the princely grave at *Čaka* in western Slovakia (Točík and Paulík, 1960). For the following phase, Urnfield *II*, the type site is the *Velatice* royal grave in Moravia (Říhovský, 1958a), from which the name "Velatice culture" is derived. Baierdorf, a cemetery discovered in 1931 in lower Austria (Bayer, 1931; Pittioni, 1954, figs. 305, 307), is a counterpart of Velatice. Hence the name "Baierdorf-Velatitz culture" used by Austrian archaeologists (Pittioni, 1954).

The Čaka phase: The symbol for this phase is the armoured chieftain of Čaka in western Slovakia, whose grave equipment is reproduced in plates 21 and 22. The chieftain was cremated and all his grave goods, particularly the armour, were damaged by the fire. However, from the tiny scraps of bronze

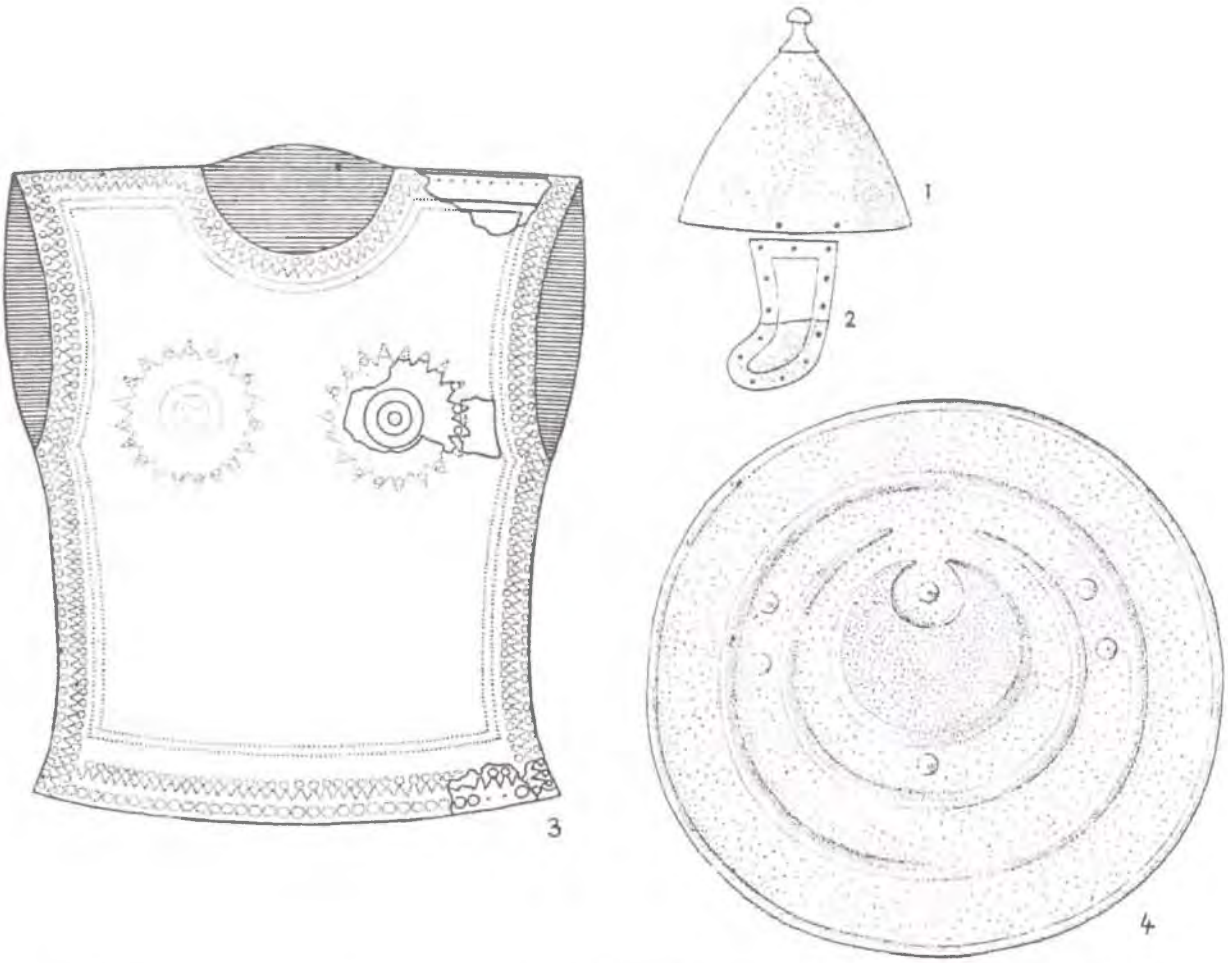


FIG. 214. Helmet, armor and shield from the early Urnfield period. **1,** spiked helmet from Gusterița, Transylvania, Urnfield II; **2,** cheekpiece (with a reconstructed upper part) from a hoard of Wollersdorf, lower Austria, Urnfield I; **3,** a reconstruction of the armor from the royal tomb at Čaka, western Slovakia, Urnfield I; **4,** shield from a hoard found at Plzeň, Bohemia. Urnfield I. Scale: **1, 2, 4,** approx. 1/7; **3,** approx. 1/6.
After Müller-Karpe, 1962 **(1, 2, 4)** and Točík and Paulík, 1960 **(3)**.

sheets, fragments of ornamented edges, and star-shaped ornamental plates, Dr. Paulík was able to reconstruct the armor (fig. 214, *3*), so far the earliest known in central Europe; armour appeared as a response to the needs of the wars against the southern world. Probably through the borrowing of the idea from Mycenaean Greece. Other finds were: a flange-hilted sword (pl. 21, *5*), flame-shaped spear-heads (pl. 21, *9*, *10*), median-wing axes (pl. 21, *6*, *7*), a socketed chisel, razors (pl. 21, *3*, *4*), a fibula with a figure-eight-bow (pl. 21, *1*), a long pin with a small conical head (pl. 21, *11*), bronze phalerae and small buckles (probably mountings of a wooden shield), bronze belt rings, spirals, and beautiful graphite-polished vases of silvery shade, some fluted in broad bands (pl. 22). On the basis of the distribution of the figure-eight-bow fibulae in Late Helladic *IIIC*$_1$ Greece, the Čaka grave can be dated to the end of the thirteenth century B.C., within Urnfield *I*. The grave was in a large tumulus 5 m high which covered several royal graves built one above the other. The earliest central grave chamber, with traces of a timber structure, was plundered twice in antiquity. From the few sherds left, it has been deduced that

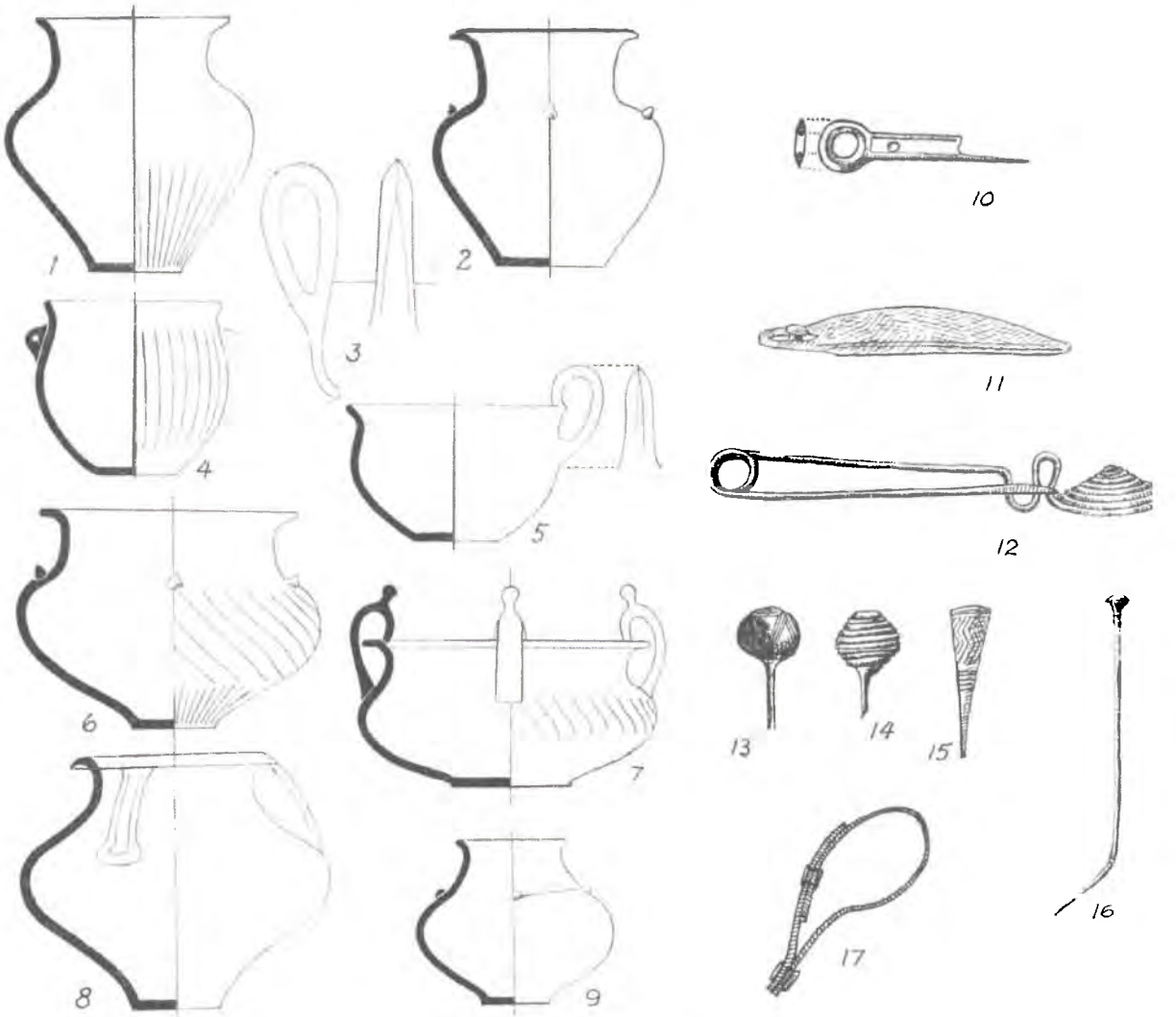


FIG. 215. **1-9,** pottery and **10-17,** bronzes from the urnfield at Unter-Radl, near St. Pölten, Austria; **1, 4, 6, 7,** fluted vases; **2, 9,** knobbed vases; **10,** ring handle from a knife; **11,** tanged knife with a rivet; **12,** violin-bow fibula with a spiral catch plate; **13,** pin with a globular head ornamented with incised lines; **14,** pin with a globular and ribbed head; **15,** pin with a long conical head; **16,** pin with a small biconical head; **17,** handle from a bronze cup. Scale: **1, 2, 4-9** 1/4; **5, 10-17** 1/2. *After* Eppel, 1949.

the first royal burial antedates the early Urnfield one; the pottery is of Tumulus type. The huge chamber tomb of the Urnfield *I* chieftain was at the southeastern side of the barrow, arranged on the fireplace where the cremation was carried out. It was rectangular, 400 by 250 cm, and in the northern wall of the grave was a niche in which the remains of the armour were found.

To about the same phase belongs the cemetery of Unter-Radl near St. Pölten, eastern Austria, which yielded fluted and knobbed pottery (fig. 215, *1-9*), bronze-hilted and flange-hilted swords, median-wing axes, flame-shaped spearheads (Eppel, 1949, Taf. III-V), violin-bow fibulae with a spiral catch-plate (fig. 215, *12*), tanged knives (fig. 215, *11*) and knives with ring handles (fig. 215, *10*), pins with globular incised and ribbed heads (fig. 215, *13*, *14*), pins with conical (fig. 215, *15*) and biconical heads (fig. 215, *16*), bracelets, ornamental plates, tutuli, fragments of bronze cups (fig. 215, *17*), and other objects.

The upper layer of the fortified late Únětice (Věterov) site at Cezavy near Blučina in Moravia (Říhovský, 1961) belongs to the beginning of the Čaka series. It was a village of several parallel streets similar in plan to the Middle Bronze Age Barca (fig. 132, *2*). The bronzes and pottery of Cezavy on the one

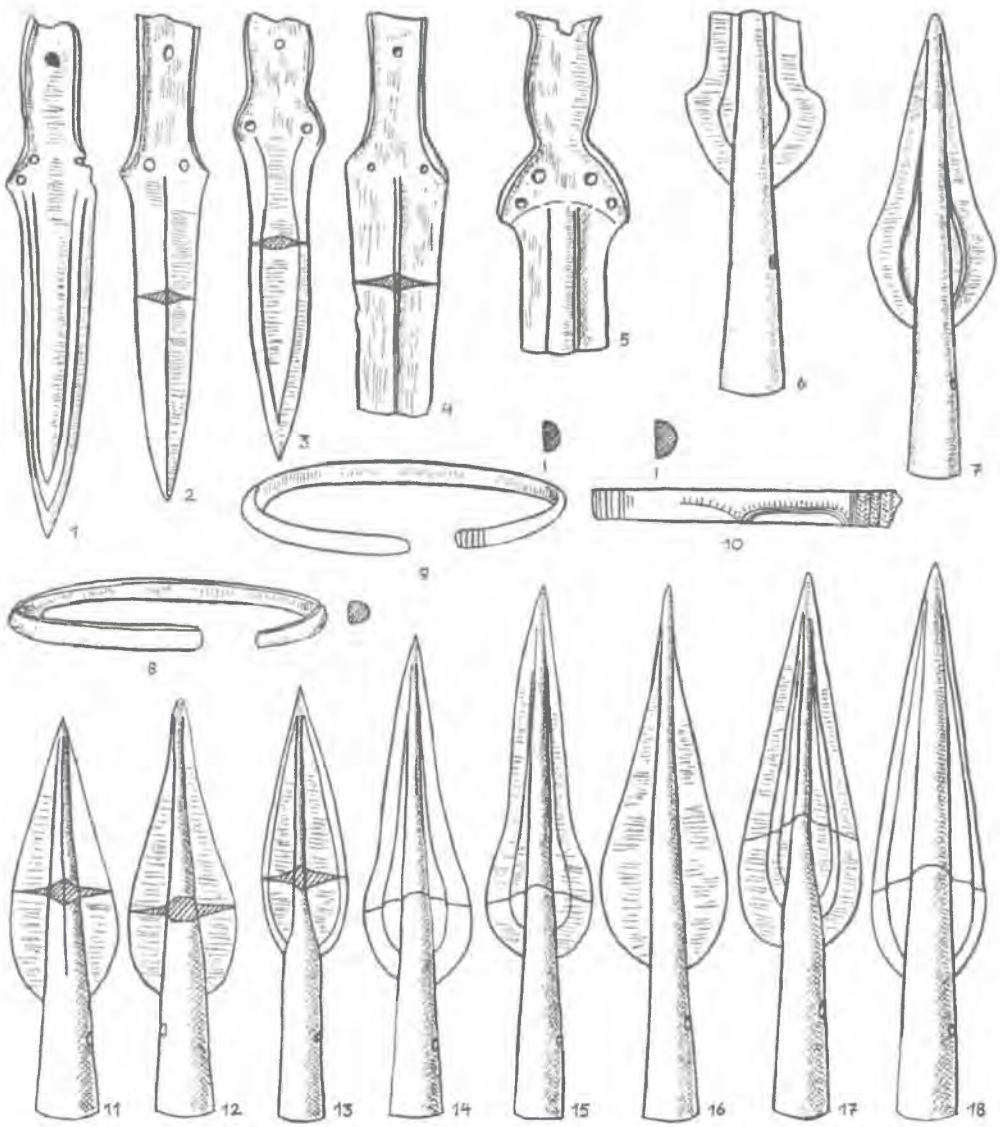


FIG. 216 *A*. Hoard of Tenja near Osijek on the R. Drava, northern Yugoslavia. **1-4,** flange-hilted daggers; **5,** flange-hilted sword; **6, 7, 11-18,** flame-shaped spearheads; **8-10,** bracelets. Scale approx. 1/2. *After* Holste, 1951.

hand very clearly show a gradual evolution from Middle Bronze Age forms, while on the other, they include many bronzes related to Urnfield *I*, like flame-shaped spearheads and median-wing axes (fig. 76).

Large hoards, concentrated especially in western Hungary and northern Yugoslavia yielded great numbers of flame-shaped spearheads, flange-hilted swords and daggers, socketed celts, and tanged sickles (a number of hoards from this area were described by Holste, 1951). One of the typical examples is the hoard of Tenja near Osijek on the Drava River, illustrated in figures 216 A and B.

Fragments of helmets were found in a few hoards; a knobbed helmet top was found in the hoard of Strassengel in Staiermark, Austria (Müller-Karpe, 1959, Taf. 126A; 1) similar to an Urnfield II helmet found in the hoard of Gusteriţa (fig. 214, *1*), and a cheekpiece of a helmet from the hoard of Wollersdorf in lower Austria (fig. 214, *2*). A fully preserved helmet with a projecting crest on top was discovered in Pass Lueg at Salzburg, Austria. The specimen was richly decorated with embossings and pointillé motif (reproduced by Müller-Karpe, 1962, p. 273-4). Its association with a median-wing axe and the technique of decoration allows to place it in the early Urnfield period, possibly in the Čaka phase. Hence, the

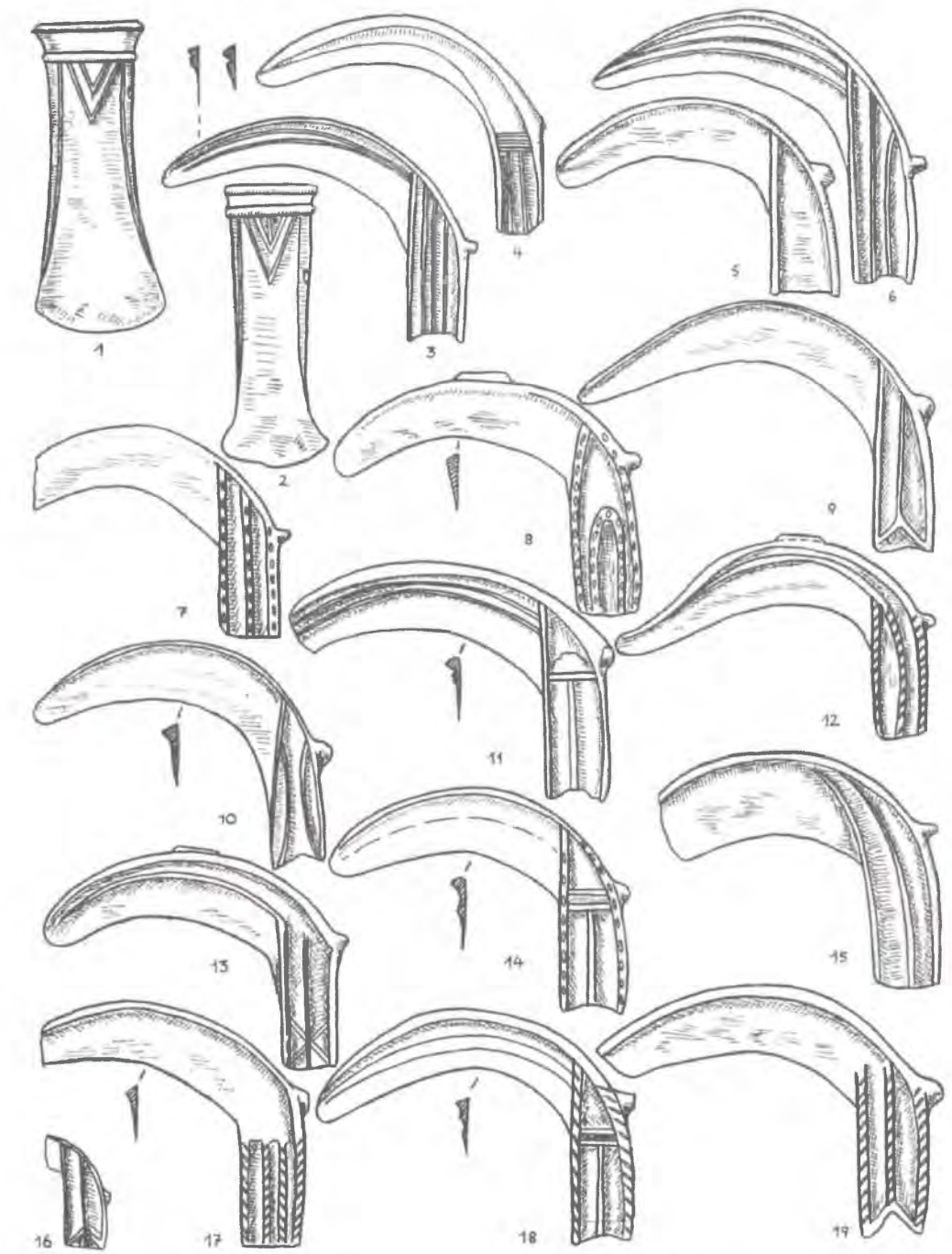


FIG. 216 *B*. Hoard of Tenja near Osijek, northern Yugoslavia (together with fig. 216 *A*). **1, 2,** socketed celts; **3-19,** tanged sickles. Scale approx. 1/3. *After* Holste, 1951.

early Urnfielders had apparently two types of helmets: knobbed and crested. A round bronze shield was found in the hoard of Plzeň, Bohemia (fig. 214, *4*).

In addition to great numbers of weapons, bronze horse gear (ornamental plates, cheekpieces, and bridle-bits) are present in hoards. A crescent-shaped bronze cheekpiece with three perforations was found in association with a figure-eight-bow fibula and other finds in the Pričac hoard on the Sava River in northern Yugoslavia (unpublished; Archaeological Museum in Zagreb). The appearance of bronze

cheekpieces in this phase unquestionably documents the use of horses. The early Urnfielders apparently were drivers of war chariots, as were the Mycenaean Greeks. War chariots have not yet been discovered either in burials or engraved on rocks, but since models of four-spoked wheels (undoubtedly representing chariot wheels) had appeared in the late Únětician period, it can be assumed that chariots continued to be used in Urnfield times. Also, two or four-wheeled cult wagons made of bronze or clay are known from the early and late Urnfield periods. Late Urnfield cult wagons, drawn by birds, look like miniature chariots. Furthermore, chariots engraved on rocks in southern Sweden and on one of the slabs of the Kivik tomb in Scåne indirectly indicate the use of chariots in central Europe, since the idea of chariot making could only have spread to southern Scandinavia by way of the central European area. Thus the central Europeans must have used war chariots drawn by horses, as well as four-wheeled wagons drawn by oxen.

Some of the hoards clearly belonged to the founders who collected scrap metal for re-smelting. One such hoard is that found at Drassburg, on the fringe of the eastern Alps; it contained numerous broken sickles, swords, axes, spearheads, knives, ornaments, and copper ore (Pittioni, 1954, figs. 285, 286). The manufacture of bronze vessels in this period is documented by means of a fragment of a large bronze vase with a cylindrical neck and rounded belly from the hoard located between Bingula and Divos, in the district of Zagreb, northwestern Yugoslavia (Holste, 1951, pl. 12, *20*). The same hoard yielded large ornamental plates with concentric circles or fluted decoration which could have been used for shield or armour decoration. The date is indicated by a fibula with a figure-eight-bow.

The water bird, or "duck", now comes onto the scene in the form of pendants or figurines together with ring and wheel pendants (cf. the hoard found between Bingula and Divos, Zagreb Museum: Holste, 1951, pl. 11; 12). Bird forms spread over the whole area of the Urnfield culture and its sphere of influence; it became the most typical and frequent symbol during the succeeding phases, but its origin must lie in the Mycenaean-Minoan culture where bird symbols were used in cults even earlier. Very similar bird figurines are present on objects in the treasure of Tyrins in Greece: a bird perching on the rim of a bronze cup and bird pendants attached to the tripod holding a large bronze cauldron (pl. 20, *2*).

Curious snake pins with spiral heads, very probably connected with the snake cult, also appear. In the cemetery of Cezavy near Blučina in Moravia, a snake pin was found above a woman's thigh bone (Tihelka, 1961).

The Velatice phase: The cremation grave of the type site at Velatice also belonged to a royal personage as revealed by the rich furnishings: a bronze-hilted sword (fig. 217, A *1*); a flame-shaped spearhead (fig. 217 A, *2*); a bronze cup (fig. 217 A, *8*); a great number of pots (fig. 217 B), and other finds. Included in the well-fired and polished black-grey pottery were bulging vases with cylindrical necks (fig. 217 B, *1*, *5*, *7*), biconical urns (fig. 217 B, *3*), bowls (fig. 217 B, *2*, *6*, *8*, *10*, *11*, *13*), and cups with small handles (fig. 217 B, *4*, *9*) or with high handles (fig. 217 B, *12*, *14-16*). The pottery cup (fig. 217 B, *4*) is an exact duplicate of the bronze cup (fig. 217 A, *8*), which proves the local origin of the bronze vessels. The high handled cups have a very metallic appearance; they are made of very thin clay and were modeled as if they were made of bronze sheets. Some dishes have fluted rims (fig. 217 B, *11*). The lower parts of the large vases are decorated with scratched lines (fig. 217 B, *1*).

The Velatice weapon and tool forms were about the same as those in the Čaka phase, but ornaments show more embellishment and even sophistication. Heavily ribbed bracelets and pins with heavily ribbed necks and heads predominated. These forms, with slight variations, were common to almost all the Urnfield II groups from eastern France to Transylvania. A hoard of jewelry from Rothengrub in Austria included plaited gold wires, a pectoral ornament of a complicated design made of bands of spirals and spiraled tutuli, and ornamental plates with concentric circle motifs for decorating leather belts (Pittioni, 1952, 1954, figs. 288 and 289). Sword hilts and pommels were profusely decorated with concentric circles and with vertical bands of interconnected spirals. The so-called "Riegsee" type sword

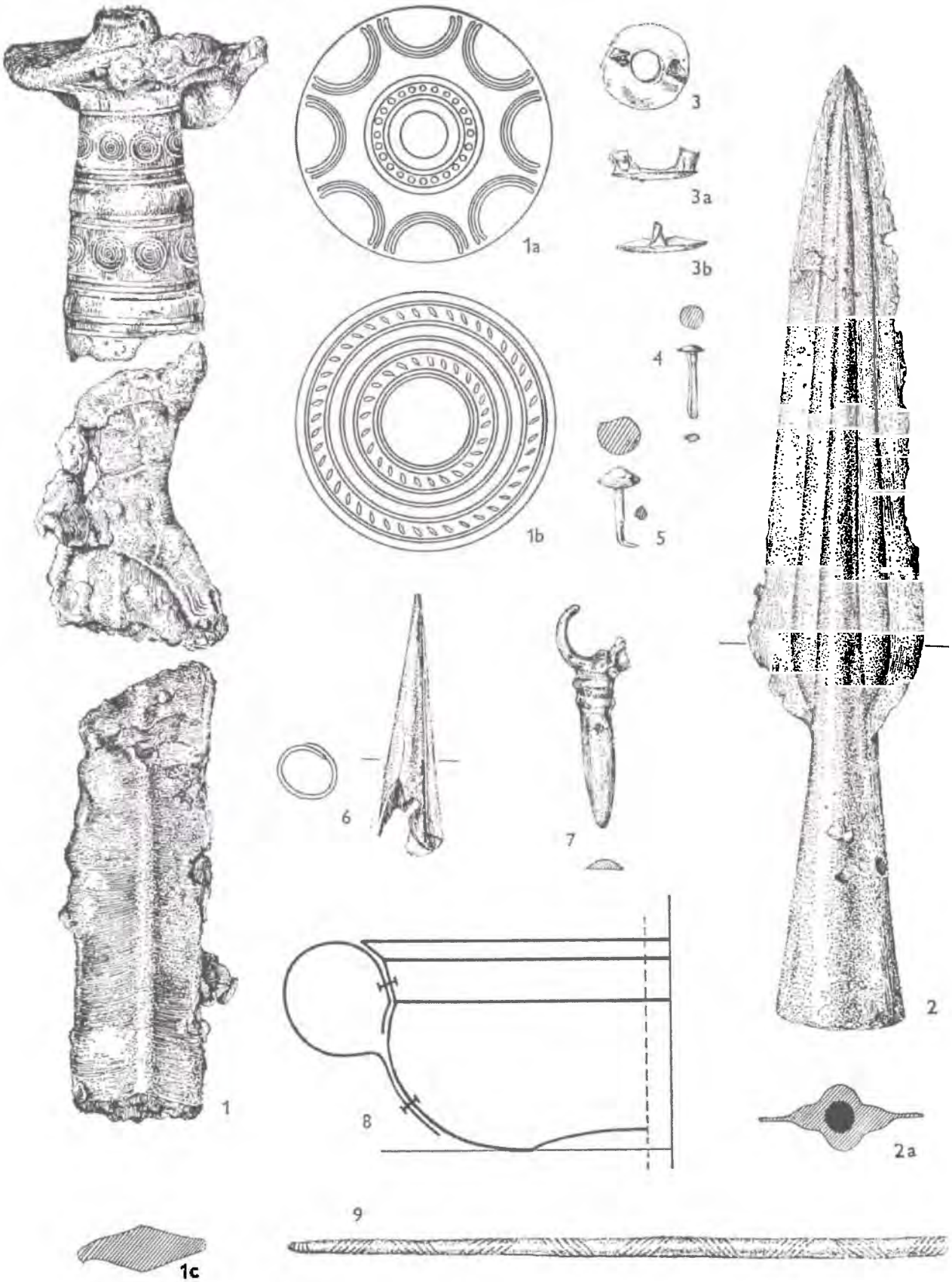


FIG. 217 *A*. Bronzes from the royal tomb at Velatice, district of Brno in Moravia. **1**, sword; **1***a* and **1***b*, decoration of the top and the under part of the pommel; **1***c*, cross-section of the blade; **2**, spearhead; **2***a*, cross-section of the latter; **3**, ornamental plate, **4**, **5**, rivets; **6**, tutulus made of bronze sheet; **7**, pendant; **8**, bronze cup; **9**, outstretched neck-ring.

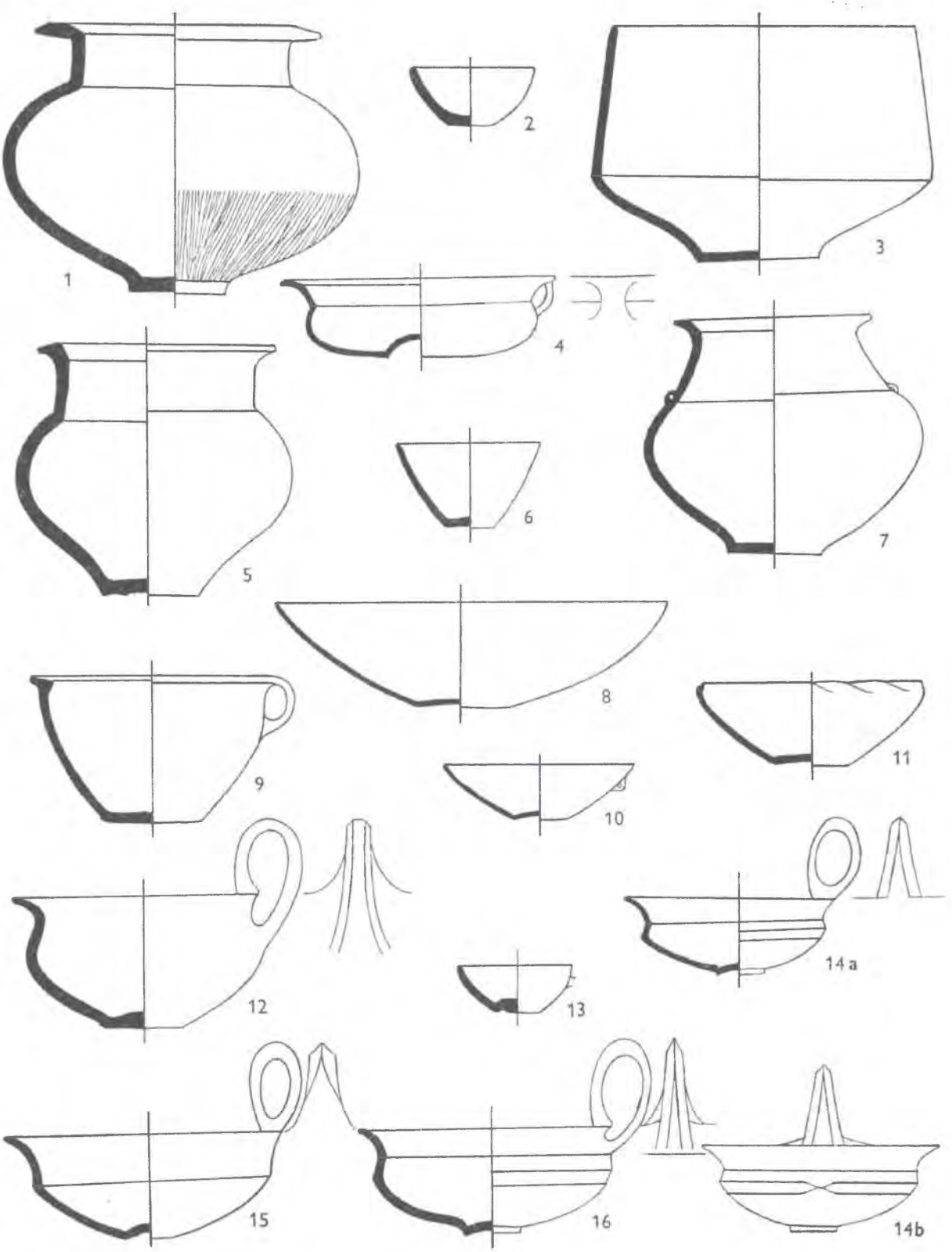


FIG. 217 *B*. Pottery from the royal tomb at Velatice, Moravia. (Together with fig. 217 *A*.)
Scale approx. 1/6. *After* Říhovský, 1958.

(named after a cemetery in Bavaria) was the most frequent form of solid-hilted sword in the middle Danubian area (fig. 84, *2*, *3;* Bayer, 1931, Taf. III) as well as in Transylvania (fig. 87, *8*, 9).

Zoomorphic footed vases are assigned to the Velatice phase. One from Vienna-Vösendorf has a head of bovine appearance (Pittioni, 1954, p. 432, fig. 304). Water birds in association with wheel pendants, maceheads (fig. 218), and other cult objects like wheeled cauldrons (pl. 62, *1*) became quite frequent. The leaf-shaped or lanceolate (like those in fig. 86, *7*), anthropomorphic (like those in fig. 86, *8*, *9*), wheel- and hour-glass-shaped (like those in fig. 89, *15*) pendants belong to the same series of objects connected with religious cults. They were attached to fibulae, cult chariots, or cauldrons. The hour-glass motif, very frequently repeated on the flat bows of fibulae (fig. 86, *2*, *5*, *6*), apparently comes from the Minoan-Mycenaean symbol of the altar (Fiedler, 1953). The most characterisic cult objects are wheeled cauldrons, one of which was found in the Milaveč tumulus of southern Bohemia (pl. 62, *1*). A close counterpart, known from Skallerup, Zealand, has leaf-shaped pendants and ducks (pl. 62, *2*). A cauldron placed on a tripod with bird pendants attached from the treasure in Tiryns in Greece, already mentioned (pl. 20, *2*), is a close analogy to these European cauldrons. The cauldron from Szászvárosszék, Hungary, placed on a four-wheeled cart and "drawn" by six pairs of birds (pl. 62, *3*)

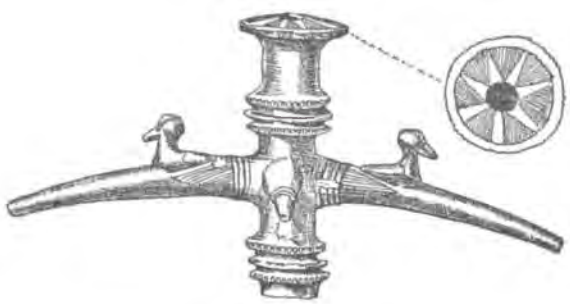


FIG. 218. Sceptre with birds perching on the arms. Pozsony near Bratislava, Slovakia. Scale approx. 1/2. *After* Roska, 1958.

may also belong to this phase. The find was made in 1834 and the circumstances of its discovery are not known (Hampel, 1887, pl. LVIII).

The extravagancy of pottery and bronze or gold artifacts indicates a notable rise of the material culture in the Middle Danube realm and, we may surmise, this particular Urnfield group was one of the best economically and politically organized centers. The ruling chieftains' wealth and power is seen from the presence of royal tombs.

In addition to the grave of the Velatice chieftain, who must have ruled over the western Middle Danubian part in the territory of present Moravia, another royal burial roughly contemporary to Velatice was brought to light at Očkov in western Slovakia. In richness, elaborateness in structure, and in the pomp of the funeral ceremony, it is not surpassed by any other royal tombs in the Urnfield realm. It must have belonged to a ruler of the eastern and most important part of the Middle Danubian culture, if not to a supreme king of the whole Middle Danubian area.

Očkov is a village which is 6 km northwest of the present resort of Piešťany, at the southern edge of the Little Carpathian mountainous ridge in the loess-covered valley of the Váh River. The barrow adjoins a large, as yet unexcavated, habitation site of the same period. The barrow was accidentally discovered in 1953 during the excavation of a Roman cemetery nearby. Systematic excavations were completed in 1959 by Dr. Paulík (a detailed excavation report: Paulík, 1962).

The barrow is 6 m high and is encircled by a massive stone wall, 25 m in diameter. Below this is a huge funeral pyre, at least 10 m across, covered by a thick layer of ashes, charcoal, remains of cremated bones, a mass of pottery sherds showing traces of secondary firing, and molten bronze artifacts. After cremation, a pit was dug 5.5 m into the ground in the middle of the pyre. It was a rectangular chamber,

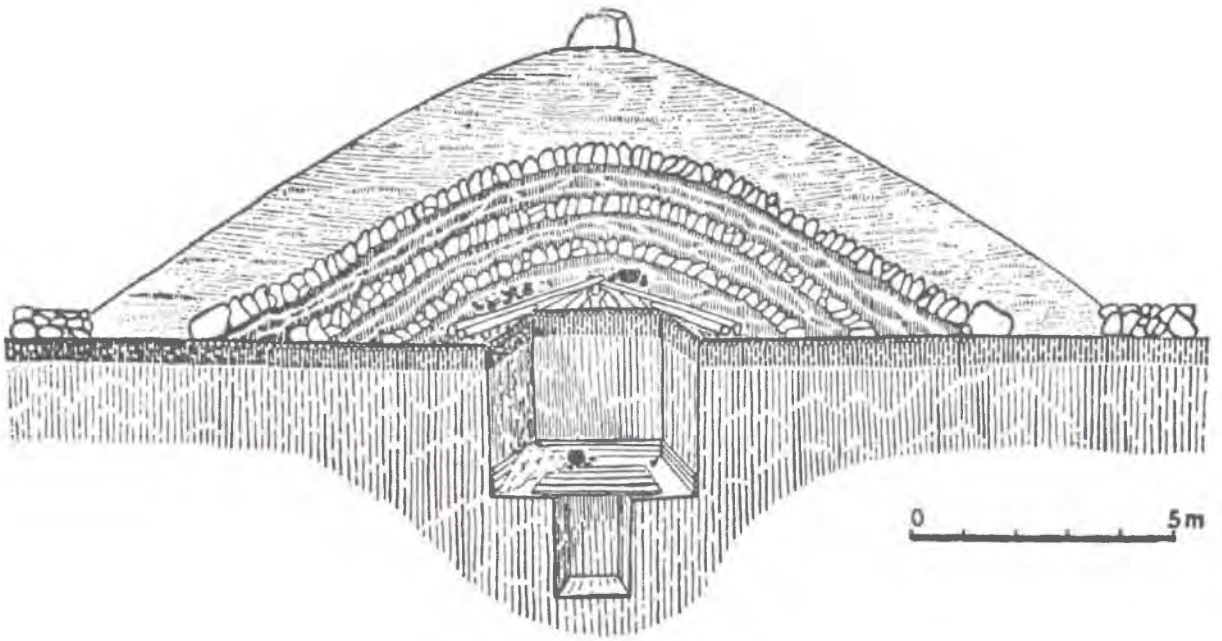


FIG. 219. A schematic reconstruction (a cross-section) of the royal tomb at Ockov near Piesťany, western Slovakia. *After* Paulík, 1962.

5 by 4 m in size. Horizontal balks lined the walls from the bottom up to the height of 50 cm. Nothing exciting was found in this chamber beyond ashes and other remains from the funeral pyre. The royal bones, however, were found in a smaller pit dug into the center and below this upper chamber. The cremated bones were on the bottom of this grave-pit, probably in a biconical urn, together with fragments of gold ornaments, bronze weapons, pots, and other belongings that were sorted out from the pyre. The top of the pit was covered by some substance, presumably leather. The upper chamber was also covered, with a pitched roof constructed of a double row of wooden beams. After offerings, including hundreds of pottery vases and bronze vessels, were deposited above the roof and final rites performed, the tomb was covered by a barrow of loess alternating with three solid layers of stones. A huge tombstone was placed on top of the barrow, and a sustaining wall around it (fig. 219).

The king was cremated in full attire with many accessories. However, what was left in the funeral pyre consisted mostly of lumps or fragments of molten weapons, ornaments, and other artifacts. His sword, spear, knife, belt, shield, horse bridles, bronze pins, glass beads, and gold ornaments were burnt together. His wooden shield was not preserved, but its presence is indicated by a bronze phalera and many nails having circular heads. Bridle parts were represented by round ornamental plates having two loops on the underside and a massive bridle-bit. Other round plates with loops or pins probably served for the decoration of a belt or other such reconstructable objects. Many larger and smaller circular plates with inward-curving edges are presumed by the excavator to have been used for studding a leather or woolen shirt worn under the armor. Other objects include a number of solid gold rings, rivets, and fragments of bronze tubes. Gold objects were also heavily damaged by fire, the fragments consisted of thin wire spirals, some of them wound around a bronze wire. Most of the other finds were stored above the roof: beautiful pottery vases of many shapes (some of them are reproduced in plate 63) and bronze vessels. Many dishes had stains of some liquid substance. Among the bronze vessels were remains of two buckets, one of which was of wood and only plated with embossed bronze sheets. Cups were either plain or embossed with two rows of bosses in the middle (fig. 220, *2*). One cup was outstandingly decorated with two or three rows of vertical ribbings and fluted semicircles below the

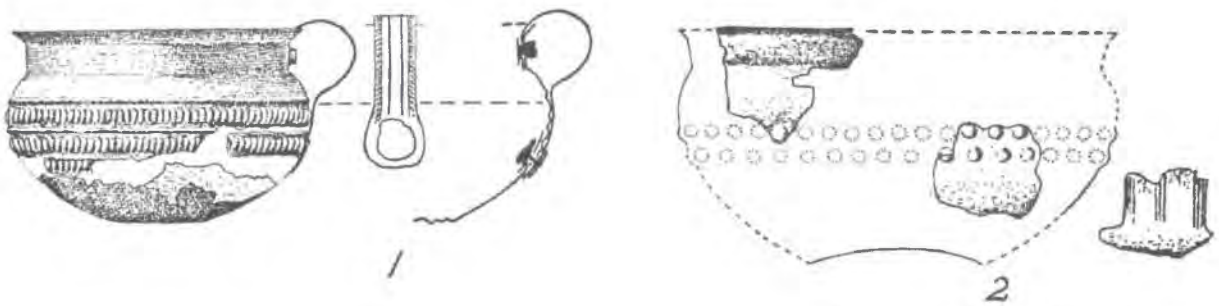


FIG. 220. Bronze vessels from the royal tomb at Očkov. Scale: **1** 1/3, **2** 1/2. *After* Paulík, 1962.

ribbed rows (fig. 220, *1*). Decorated bronze vessels were rare during the Urnfield *II* phase. Apparently the richly decorated specimens were made by the best smiths for the king. On the whole, there were 144 objects in the barrow and in the grave which have escaped total destruction.

Dr. Paulík has stressed an unquestionable parallelism between the Urnfield and Mycenaean royal burials. Homer's description of the funeral of Hector and Patroclos in the *Iliad* throws much light on some aspects of the funeral ceremonies in central Europe. In the *Iliad* we find that an enormous funeral pyre was arranged for the cremation of Patroclos and Hector. For Hector's pyre, collection of timber took nine days. When Patroclos's body was laid above the timber, Achilles brought many pots filled with honey and fats and placed them at the edge of the pyre. Homer mentions that twelve Trojan youths were sacrificed for Patroclos; evidence for human sacrifice is likewise present in the barrow of Očkov: some dishes above the roof contained cremated human bones. Further similarities are seen in the building of the burial chamber on the spot of the cremation, after it was completed. Patroclos's and Hector's tombs were covered with stones and earth, and the barrow was within a stone wall; a fact also repeated at Očkov. At the burial of his dearest friend Patroclos, Achilles expressed his wish to be buried later in the same barrow. Again there is a parallel at Čaka: the two royal tombs, one from an earlier period (Late Tumulus), another from the end of the thirteenth century, provide an analogy for a second royal burial in the same barrow.

Parallels between the Mycenaean Greeks and the peoples of central Europe existed in areas other than in burial rites. The discovery of royal tombs indicates a similar social and administrative organization. The Middle Danubian country, like that of the Mycenaeans, was divided into several principalities. The distribution map of Middle Danubian sites (fig. 213) shows at least three major groups: one in Moravia, another in lower Austria and western Hungary, and a third in western Slovakia; each extending over an area of approximately 200 km across. What is the location and description of the actual centers of each tribe? Was there one center or "capital" of the entire Middle Danubian culture? These problems remain for future research to solve. The situation of villages and acropolises has not as yet been satisfactorily investigated, although many hill forts with ditches, ramparts, and stone walls are reported from this area (Paulík, 1962, p. 67-8).

ii. *The Lusatian group*

The Lusatian group in eastern Germany, western Poland continued from the Middle Bronze Age (fig. 221) and it extended the borders into northern Czechoslavakia.

If Middle Danubian and Knovíz pottery can be typified by "fluting", the Lusatian pottery is typically "bossed" ("Buckelkeramik"). In the twelfth century B.C. it developed into a classical shape. Jugs, terrines, and large amphorae were decorated with four to six breast-shaped bosses. The neck was sometimes longer than the body. The proportions were excellent, giving an outstandingly graceful form to the pots (fig. 222, *4*, *5*). To quote Seger, "there is perhaps no other pottery among prehistoric remains



FIG. 221. Distribution of the Lusatian group. **1,** Lusatian area since the Middle Bronze Age; **2,** territory occupied in the twelfth century or later. Arrows indicate strong Lusatian influence in the Baltic area and probable expansion in Slovakia.

which shows such creativity and variety of form" (Seger, 1926c, p. 252). This is certainly true, but the same could be said also about all Urnfield pottery, especially about the Middle Danubian. The ossuary was usually biconical in form, the lower cone frequently ornamented with incised lines radiating from the base. The lower part of conical cups was also decorated with incised lines. Along with these main types, tall pots with oval bodies and out-turned rims (fig. 222, *6*), cups (figs. 222, *3*), and dishes were found in graves. Some cylindrical pots had symbolic decorations – crosses, concentric circles, ladder motifs, and parallel lines.

Weapon, tool, and ornament forms show general similarity to Middle Danubian and other Urnfield shapes, but the Lusatians had their own variants. This individuality and the particular concentration of large hoards in Saxony indicates that there must have been a productive metallurgical center in central Germany which supplied eastern Germany, Poland, and the eastern Baltic area with bronzes. Typical bronzes current in the Lusatian area during this phase have already been illustrated in the hoard of Branka which contained a button sickle, a flame-shaped spearhead, a palstave, a neck-ring, and a bra-

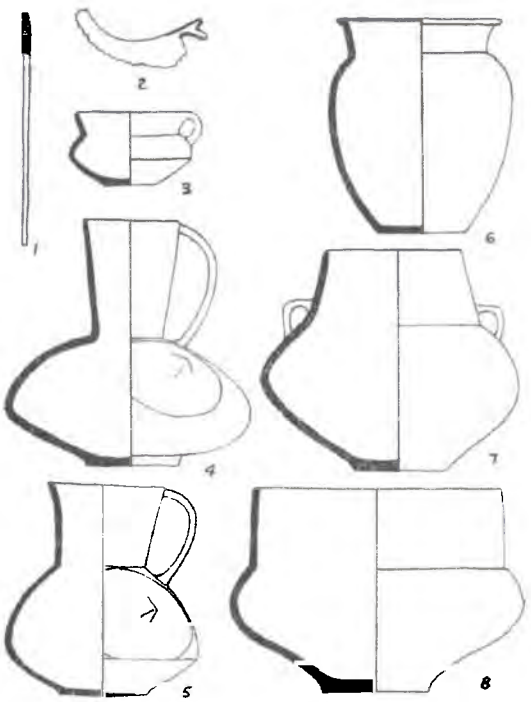


FIG. 222. Grave inventory from the cemetery at Pamsitz, Grossenhain district, Saxony. Advanced phase of early Lusatian culture, **1**, pin; **2**, razor; **3-8**, pots. Scale: **1**, **2**, 1/2; **3-8**, 1/4. *After* Grünberg, 1938.

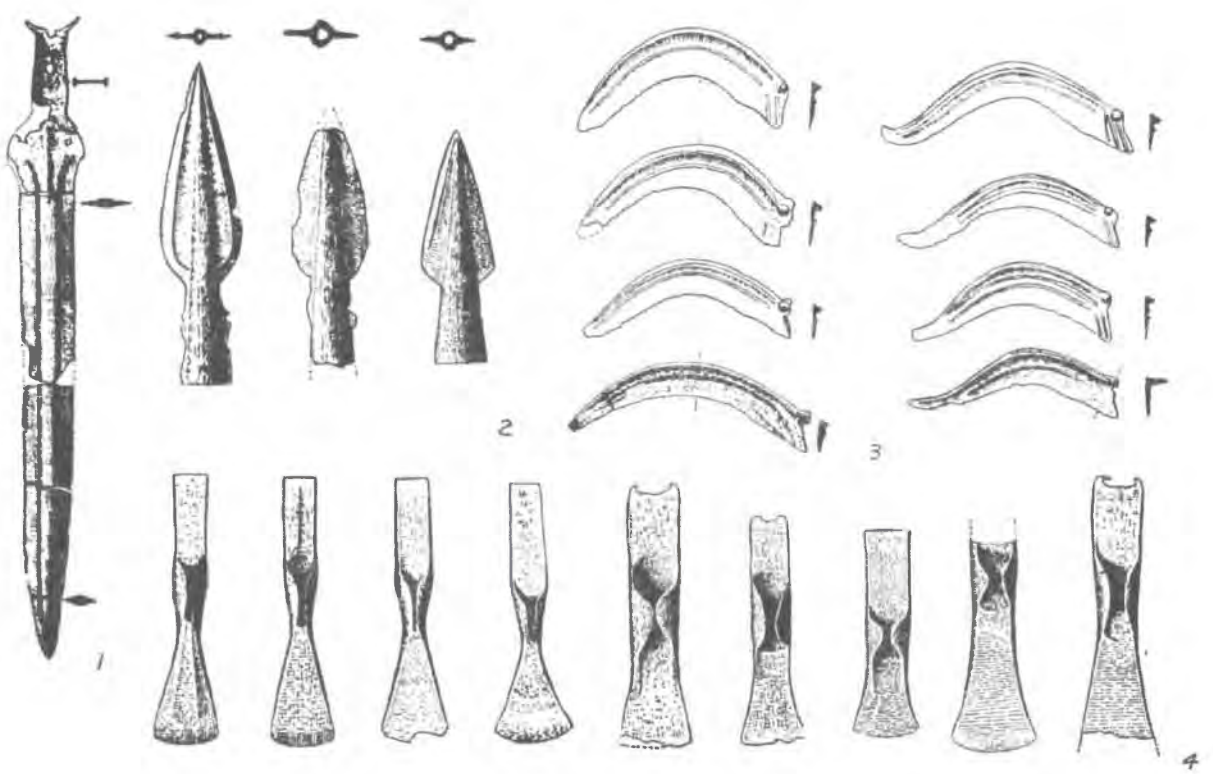


FIG. 223. Finds from the hoard of Weissig, near Dresden, Saxony. **1**, flange-hilted sword; **2**, spearheads; **3**, button sickles; **4**, palstaves and median-wing axes. Scale approx. 1/4. *After* Kleemann, 1942.

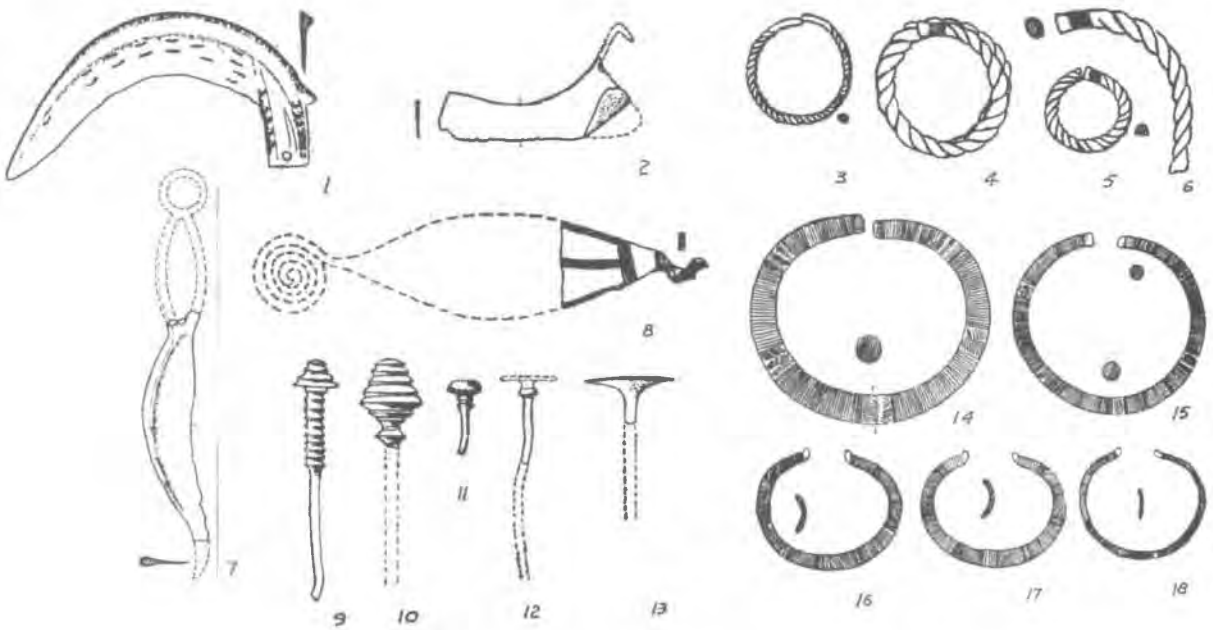


FIG. 224. Finds from the hoard of Weissig, near Dresden. **1,** tanged sickle; **2,** razor; **3-6,** twisted arm-rings and fragment of a neck-ring; **7,** knife; **8,** fragment of a fibula with a flat bow; **9-13,** pins; **14-15,** neck-rings; **16-18,** bracelets. Scale approx. 1/4. *After* Kleemann, 1942.

celet (fig. 91). The same type of button sickles, palstaves, and bracelets turned up in a tremendous founder's hoard found at Weissig near Dresden, in Saxony (Kleemann, 1942). Along with numerous palstaves (fig. 223, *4, left*), median-wing axes (fig. 223, *4, right*), and button and tanged sickles (figs. 223, *3*; 224, *1*), short spearheads with plain wings (fig. 223, *2*) and a fiange-hilted sword appeared (fig. 223, *1*). A cheek guard from a helmet (Kleemann, 1942, p. 79, Abb. 13), a fragment of a razor, apparently with a horse-head handle (fig. 224, *2*), and a knife supposedly with a ring head were also discovered (fig. 224, *7*). Ornaments were represented by a remnant of a spiral-catch fibula with a flat bow ("Spindlersfeld" type: fig. 224, *8*), pins with ribbed, double-conical, and button heads (fig. 224, *9-13*), and a fairly large number of neck-rings and bracelets. Neck-rings and bracelets were of two types: one made of a twisted rod with plain ends, and the other – a stouter-sectioned one – with tapered ends decorated with vertical or diagonal striations and a herringbone design (fig. 224, *3-6, 14-18*). Another hoard, which yielded over 100 button sickles, median-wing axes, and a bracelet, forms related closely to those from Weissig, was found at Oberthau, in the district of Merseburg near Leipizg (Kleemann, 1940). Many other outstanding hoards like those of Bedra, Deetz, Schkopau, Frankleben, and others in Saxony belong to the same phase (Brunn, 1958).

Lusatian socketed celts also had their own character. They were not decorated with a letter V decoration like Danubian celts and did not have projecting mouths as did those distributed in the Carpathian area, but were modestly ornamented, usually with a wing decoration on the sides reminiscent of the flanges of the earlier axes from which they developed. Lusatian celts retained their individuality throughout the Bronze Age. Basic types from different periods are shown in figure 225.

Fibulae with spiral catch-plates and flattened bows decorated with an hourglass design, omnipresent between the Rhine and eastern Transylvania, developed in Lusatian hands into a local variant which is called "Spindlersfeld" after the hoard near Berlin (Sprockhoff, 1938). Fibulae, a mold for a heavily ribbed head, a bracelet, and pendants from this hoard are illustrated in figure 86, *4-13*.



FIG. 225. Lusatian socketed celts. *A*, 14-13th centuries *B.C.*; *B*, 12th century *B.C.*; *C*, 11-10th centuries *B.C.*; *D*, *E*, 9-8th centuries *B.C.* Scale approx. 1/3.

iii. *The Tisza group*

This group occupied the whole Hungarian plain east of the Danube, eastern Slovakia, and the western parts of Transylvania. In the north it spread along the metalliferous Carpathian foothills.

Almost all the information on this part of the Urnfield culture comes from northern Hungarian and Transylvanian hoards. Only a few cemeteries in eastern Hungary have recently been excavated and their finds have not yet been published. From what we know, apparently a gradual evolution from Middle Bronze Age cremation rites, pottery, and ornament style, that is, from the Piliny culture which produced large cremation cemeteries of northern Hungary, took place.

In ceramic style the Tisza group differed markedly from the Middle Danubian and Lusatian groups. Large biconical urns with wide and high necks decorated with horizontal incised lines or flutings were distinctive types. Around the belly were small or large knobs, plain or encircled by rings or semicircles (fig. 226). This type of pottery is named the Gava type after the cemetery at Gava, northeast of Debrecen

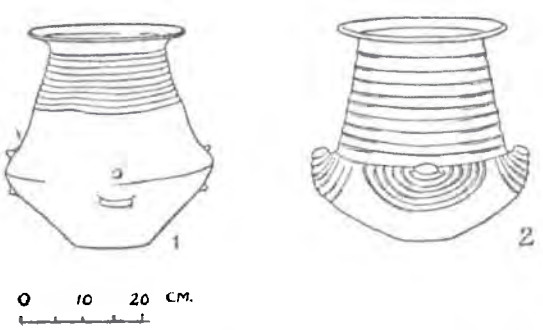


FIG. 226. Pots of Gava type eastern Hungary. **1**, the cemetery of Gava; **2**, the cemetery of Mohi. *After* Šolle, 1957.



FIG. 227. Find (presumably a hoard) from Pétervására, district of Heves, Hungary. **1-4**, socketed celts with projecting mouths; **5**, wrist-guard; **6**, spiral arm-ring; **7-11**, pins; **12-14**, flange-hilted daggers; **15-16**, spearheads. Scale approx. 1/3. *After* Holste, 1951.

in northeastern Hungary. Other larger cemeteries which yielded similar pottery are those in Mohi, also near Debrecen (the same cemetery yielded earlier, Mohi I, and later Urnfield or Mohi II finds), and in Czorvas west of Szeged. (The latter was excavated in 1957-1958 by Dr. Otto Trogmayer of Szeged; it contains finds ranging from the Middle Bronze Age to the late Urnfield period.) It is now certain that the whole eastern Hungarian plain was occupied by people who made the same kind of pottery (information from Dr. E. Patek of Budapest, 1960), but how far this type of pottery spread in the east remains unknown. Judging from rather uniform bronzes all over Transylvania and eastern Hungary, sites with similar pottery should be expected in western Transylvania at least.

Pins, bracelets, socketed celts, sickles, and several other bronze types took variant forms when produced by the Carpathian metallurgists. Long pins with disc or conical heads with or without several swellings on the neck and frequently decorated with groups of striations, socketed celts with projecting mouths, and spiral armbands ending in spiral plates and wrist-guards with a large spiral plate were typical. Wrist-guards and spiral arm-rings underwent here only insignificant changes from Middle Bronze Age forms. Weapons were very much the same as in the Middle Danube and other groups. As a type site for the early or Urnfield I phase (*ca.* 1250-*ca.* 1200 B.C.), I have chosen the Sajó-Gömör hoard of northern Hungary which is illustrated in figure 75. It comprised flange-hilted swords (fig. 75, *1*, *2*), flame-shaped spearheads (fig. 75, *6*, *7*), and a median-wing axe (fig. 75, *5*) which are very close parallels to the swords, spearheads, and axes from Late Helladic III B and Late Helladic III C sites in Greece and contemporary sites in the eastern Mediterranean area. In addition, a number of pins were found in this hoard (fig. 75, *8-17*). The Pétervására hoard in the district of Heves, northern Hungary presents another counterpart. It contained Carpathian types of socketed celts (fig. 227, *1-4*), a wrist-guard (fig. 227, *5*), a spiral arm-ring (fig. 227, *6*), pins with disc and conical heads (fig. 227, *7-11*), flange-hilted daggers (fig. 227, *12-14*), and flame-shaped spearheads (fig. 227, *15-16*).

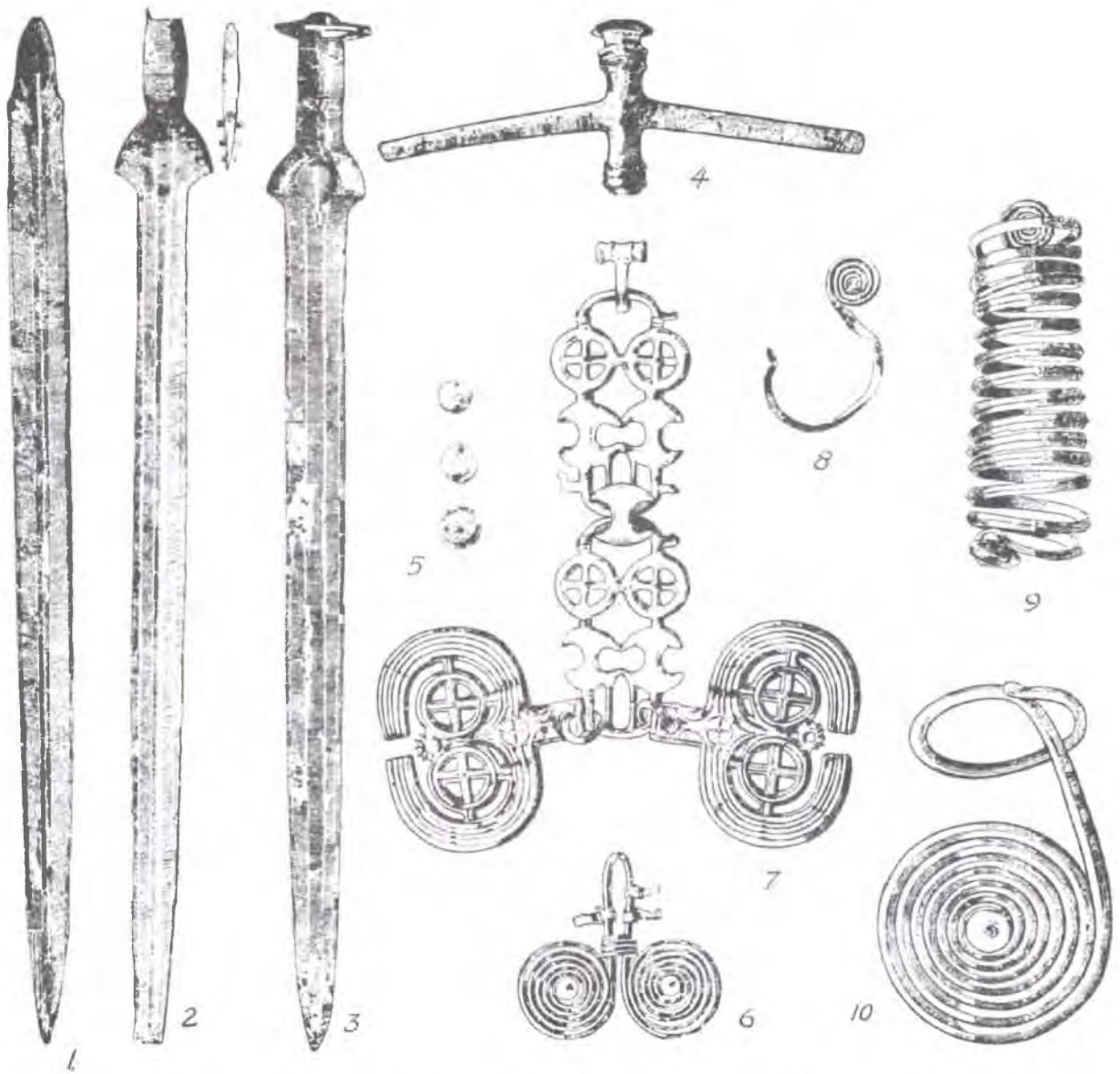


FIG. 228. Finds from the hoard of Rimavska Sobota-Rimaszombat, eastern Slovakia. **1-3,** swords; **4,** macehead; **5,** convex ornamental plates; **6, 7,** belt pendants; **8, 9,** spiral arm-rings; **10,** wrist-guard. Scale approx. 1/4. *After* Hampel, 1887.

The Urnfield II phase is characterized by hoards like Rimaszombat (fig. 228) south of the Tatra mountains in Slovakia, or Aranyos I near Borsod (illustrated in Childe, 1950, p. 196), containing wrist-guards (fig. 228, *10*), spiral arm-rings (fig. 228, *9*), maceheads with two long arms (fig. 228, *4*), pendants made up of wheel and hourglass-shaped symbols (fig. 228, *7*), and swords of fiange-hilted (fig. 228, *2*), bronze-hilted (fig. 228, *3*), and of the "Rixheim" type (fig. 228, *1*), in addition to flame-shaped spearheads, daggers, socketed celts, and other finds. A large founder's hoard which is contemporaneous with Rimaszombat and Aranyos I came to light in Domahida, district of Szatmár (Hampel, 1887, Taf. CXXII-CXXIV). This founder collected a great many damaged axes with cylindrical shaft-tubes and spiked or conical but-ends (like that in fig. 90, *1*, *9*), maceheads with side arms (like that in fig. 228, *4*), socketed celts with projecting mouths, C-shaped bracelets with tapered ends, a great many fragments of buttoned and tanged sickles, damaged flange-hilted swords, flame-shaped spearheads, a shaft-hole axe with a crescent-shaped butt (like that from the hoard of Drajna de jos, fig. 105, *2*), and copper ore.

From central Transylvania come the largest bronze hoards of Europe: Uioara de Sus (Holste, 1951), Gusteriţa (Holste 1951), Suseni (Filimon, 1924; *see* references for the Study in Chronology), and Şpălnaca (Reiner, 1888; Dumitrescu, 1938). They weigh hundreds of kilograms (the Gusteriţa hoard weighs nearly 400 kg) or even thousands (the one of Uioara de Sus: 1100 kg). Selected bronze objects typical of this particular phase from the hoards of Suseni and Uioara de Sus were already discussed and are illustrated in figures 85, 87-89.

The most intensively produced objects were socketed celts and sickles. The basic types of socketed celts are shown in figure 88. In addition to celts with projecting sockets (fig. 88, *7, 8*), which are confined throughout the Late Bronze Age to the Carpathian-Transylvanian area, there were elegant celts with chevron decorations (fig. 88, *9-11*), and ones with parallel or curved line decorations over the upper part (fig. 88, *1-5*). The latter could be labeled as Transylvanian types because of their concentration in Rumania. There were button sickles, tanged sickles, and hooked sickles. The first two types are generally similar to the middle Danubian ones, but the hooked sickles (fig. 87, *2*) belong exclusively to the Carpathian and Transylvanian areas.

Bronze belts were decorated with incised symbolic emblems and a minute geometric ornament. The sun motif dominated (see the belt from Gusteriţa, fig. 230, and the outstretched belt from Uioara de Sus, fig. 229). To this phase belong the beautiful composite pendants made up of interconnected wheels, hourglass emblems, water birds and dangling pendants, as in the well-known example from the hoard of Rimaszombat (fig. 228, *7*). Bird heads of stylized bird figures usually appear in association with "sun wheels". In the pendant from Hungary (fig. 231) from the stylized bird bodies wheels are suspended the tails of which form the loop of the pendant.

In the amount of metal objects it produced, the Tizsa group was unequalled in Europe. Within its confines lay the most creative metallurgical center of central Europe from which the basic forms of weapons, tools and ornaments spread in all directions.

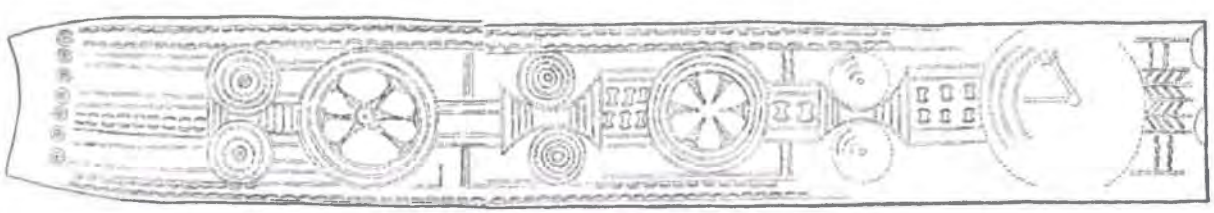


FIG. 229. Bronze belt from the hoard of Uioara de Sus, Transylvania. *After* Holste, 1951.

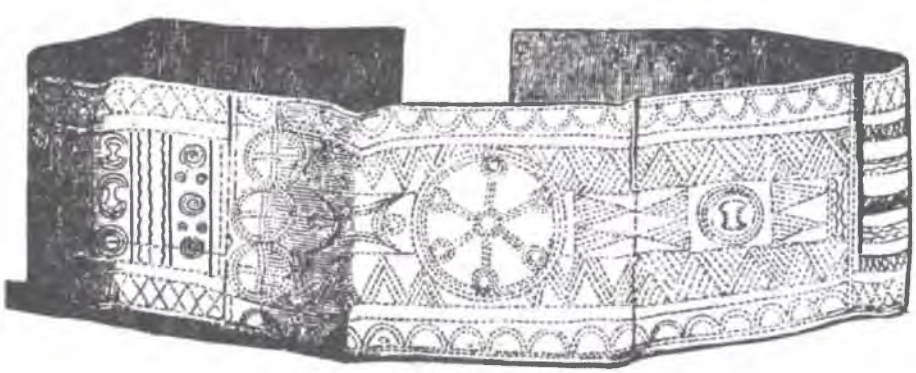


FIG. 230. Bronze belt from the hoard of Gusteriţa near Sibiu in Transylvania. *After* Pârvan, 1924.

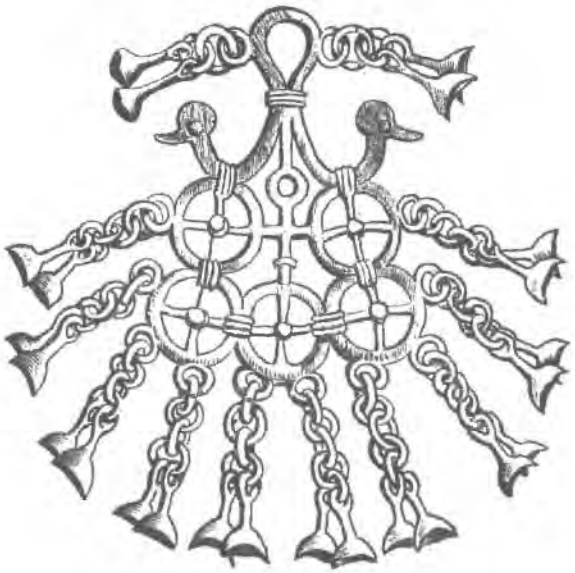


FIG. 231. Composite pendant from Hungary.
Collection of Ráth György, scale 1/3.
After Hampel, 1887.

v. *Expansion* (see map 3)

At the end of Late Helladic III B, *ca.* 1230 B.C. or somewhat later, central European swords, daggers, spearheads, median-wing axes, knives, bracelets with spiral-plate ends coiled in opposite directions, and violin-bow fibulae appeared in eastern, northern and southern Greece (Mycenae, Kallithea, Ioánnina at Kalbáki in Epirus, Ithaka, around Thessaloniki, and elsewhere). Flange-hilted swords and daggers dated to the end of the thirteenth or the beginning of the twelfth century B.C. were also found in the Dodecanese Islands, Cyprus, Syria, and Egypt. Of 26 swords so far known (listed by Catling, 1957), ten were brought to light in Greece, five in Crete and the Dodecanese Islands, four in Cyprus, three in Syria, and four in Egypt, including the famous sword with the cartouche of Seti II (1217-1211).

The appearance of central European bronzes in Greece is coincident with the catastrophe of the Mycenaean culture at the end of the Late Helladic III B period. Mycenaean acropolises and other sites between Thessaly in the north and Laconia in the south were either destroyed or deserted. In at least twelve places, the period of disaster was proved to fall in the same period, the end of Late Helladic III B (Ålin, 1962). Destruction recurred in a few places, like Tiryns or Malthi during Late Helladic III C, but the major wave of destruction that swept over the Mycenaean palaces was around 1230 B.C. Pylos, Mycenae, Athens, and other palaces and fortresses were destroyed and the Mycenaean culture retained only a shadow of its previous glory.

At the same time the Apennine Peninsula and Sicily underwent a thorough cultural change. The local Apennine culture and the Late Helladic colonies disintegrated and in their place central European elements appeared which soon dominated the entire peninsula. The earliest traces of central European incursion to Italy can be followed by the diffusion of central European bronzes of Urnfield I type: violin-bow fibulae, median-wing axes, flange-hilted swords and daggers, riveted daggers, tanged sickles and tanged knives. Considerable numbers of these artifacts, mostly isolated finds, are in the museums of northern and central Italy: Milan, Como, Varese, Brescia, Padova, Treviso, Udine, Bologna, Perugia, Rome, and others. Fortunately, they have been found also in settlements. The lake dwelling site of Peschiera in northern Italy, south of Lake Garda, yielded a great quantity of early violin-bow fibulae, flange-hilted daggers, riveted daggers, tanged knives, tanged sickles, median-wing axes, fragments of

swords, and pins with disc-like heads, all of undoubtedly Urnfield I origin (Müller-Karpe, 1959, Taf. 103, *1-11*, 28-40; Taf. 105, *3, 4, 9-17, 21-36*; Taf. 106 and 107). The same settlement continued to be occupied throughout the Urnfield II and III phases as shown by later types of bronzes having analogies in the North Alpine zone. Among them was a boss decorated vase similar to boss-decorated pottery of the Urnfield II phase north of the Alps. Another settlement in which bronzes of central European appearance and related to early Peschiera types (a flange-hilted dagger, riveted daggers, a tanged sickle, and a median-wing axe) were found is Scoglio del Tonno near Taranto in Apulia (Müller-Karpe, 1959, Taf. 13, *2, 11, 12, 14-16*). This settlement has shown evidence of a long-lasting occupation and has yielded Late Helladic IIIA, B and C_2 pottery. The above-mentioned central European bronzes probably belong to the Late Helladic III B horizon (Müller-Karpe, 1959, pp. 31-34).

A greater number of sites in Italy are characterized by asymetric violin-bow fibulae, double-edged razors, pins with ribbed necks, and knives with ring handles, having parallels in the Urnfield II and III phases of central Europe. Some of the better-known sites of this horizon are: the urnfield of Timmari I in Basilicata, lower Italy (Quagliati and Ridola, 1906, p. 84, fig. 9; Müller-Karpe, 1959, p. 35), Pianello I in Umbria (Müller-Karpe, 1959, Taf. 56A, *12, 13*), the habitation site of Torre Castellucia in Apulia (Müller-Karpe, 1959, p. 35), and Caltanissetta in Sicily (Peroni, 1956). In northern Italy, the urnfields of Canegrate, northeast of Milan, have yielded pottery vases strikingly similar to Urnfield II and particularly to Urnfield III vases from the urnfields of upper Baviaria and upper Austria which dates them to the twelfth century B.C. (Rittatore, 1953-54). The presence of urnfields in Italy of north Alpine character indicates that the peninsula must have been permanently occupied by the central Europeans in the twelfth century B.C. at the latest. Cultural developments in the following centuries up to the beginning of the Etruscan era continued to be intimately related with central Europe.

In the Lipari Islands the Ausonian I culture, dated by Bernabó Brea to 1250-1150 B.C., overlies the destroyed houses of the Middle Bronze Age (Bernabó Brea, 1957, p. 136 ff.), and in the area of Syracuse in Sicily the old culture also suddenly vanished in the same period. It is presumed that the attackers came from the Italian mainland and may be identified with the Ausonians, Sikels, and Morgetes mentioned later by the Greek authors (Bernabó Brea, 1957, pp. 147-150). According to Dionysius of Halicarnassus (I, 22), the Sikels came from Italy to Sicily in the third generation before the Trojan War, but Thucydides (VI, 2) says that the Sikels came to Sicily from Italy nearly three centuries before the Greeks. Unfortunately, both failed to give an exact date.

The identification of central European bronzes in Italy, Greece, Crete, Cyprus, Syria, and Egypt is the result of very recent research, done chiefly in the forties and fifties (Furumark, 1941; Merhart, 1942, 1956, 1957; Childe, 1948; Milojčić, 1952a, 1952b, 1955; Peroni, 1956). However many archaeologists who have recognized central European finds in the Balkans, Macedonia and Greece, ascribed them to a "Lausitz Wanderung" (Lusatian migration), which hardly reflects the real situation. Migrations to Italy, Greece, and the eastern Mediterranean, as archaeological finds show, cannot be connected with the Lusatians, but with the peoples of the Middle Danube, Tisza, Knovíz in Bohemia, and Hötting-Morzg in upper Austria and Bavaria groups. However, at the same time the Lusatians also moved and extended their limits to southern and central Poland and to northern Moravia and Bohemia; their expansion was certainly not, moreover, entirely unconnected with the movements of their southern neighbors which were of a much greater scope. The North Alpine Hötting-Morzg people crossed the Alps, the Middle Danube people invaded the area east of the Adriatic, southern Yugoslavia, Macedonia, and Greece and involved the whole chain of other tribes living in the eastern and southern Balkans in war. This great wave of expansion did not comprise only one group of the Urnfield culture.

After the first expansion around 1400 B.C., northern Yugoslavia was either subjugated or under the very strong influence of the central European peoples. Some regions were apparently in the possession of the descendants of Tumulus peoples. As far south as Glasinac, east of Sarajevo in Bosnia, their colonies were established and persisted into Iron Age. During the Urnfield period the extension of the

Middle Danube group is indicated by pottery and bronzes found between Slovenia, Croatia, and Slavonia in the north and Montenegro in the south in a number of habitation sites and in graves. In the stratified hilltop site at Zecovi, south of Prijedor in northern Bosnia, early Urnfield pottery of Middle Danube type, including profiled bowls, fragments of turban dishes with fluted rims, and beakers with high handles, appeared in stratum IV, above stratum V which held Slavonian incrusted pottery (Benac, 1956, pp. 49, 50, pl. XVI). In the cave of Hrustovač near Vrhpol in southern Bosnia, plain and fluted pottery including turban dishes and vases with cylindrical necks (Korošec, 1946, pl. II *3*, pls. XVI and XVII; Benac, 1948) was discovered in association with violin-bow or Peschiera fibulae having an arc decorated with clusters of striations and a herringbone motif (fig. 232, *A*, *1*, *2*) identical to those known from lower Austria (fig. 78, *10*) and from Glasinac (fig. 232, *B*, *1*), a large spiral plate from a wrist-guard (fig. 232, *A*, *3*), a slightly ribbed massive bracelet (fig. 232, *A*, *4*), a pin with a disc head having a biconical and ribbed swelling on the neck (fig. 232, *A*, *5*), and other ornaments (Starè, 1953). These bronzes are diagnostic of Urnfield I. Bronzes of the same time horizon came to light in a number of graves in the tumuli of Glasinac. The violin-bow fibulae from the graves in the tumuli of Taline and Štrpci and the banded bracelets from Štrpci are reproduced in figure 232, *B*. Further south, in Montenegro, pottery of Middle Danube type was found in the upper layer of Crvena Stijena (Red Cave), located west of Nikšić and east of Dubrovnik, about 70 km north of Albania. Crvena Stijena pottery included beakers and cups with high handles, rectangular or triangular in cross-cut (Benac, 1957, pls. I and II). All the above mentioned sites with materials closely related to the Middle Danube region, are classed as "Illyrian". Later developments show an uninterupted cultural continuum.

In Macedonia Heurtley's excavations uncovered two settlements, Vardina and Vardaróphtsa, both in the lower Vardar (Axios) Valley (Heurtley, 1939), which should be mentioned in connection with the expansion of the central Europeans. The sites were first occupied by late Mycenaeans probably mixed with local inhabitants. The late Mycenaean settlement was interrupted by the arrival of new people who made pottery very much like that from Urnfield II cemeteries of the Middle Danube and Knovíz groups. The gray or gray-black polished vases were vertically or diagonally fluted (fig. 233, *A*, *4*, *5*). The handles of the amphorae or jugs were also fluted (fig. 233, *A*, *1-3*). The bowls had fluted rims (fig. 233, *A*, *6*). For comparison see the illustrations of several fluted vases from lower Austria, western Slovakia, Bohemia and Saxony (fig. 233, *B* and pl. 63, *1*, *10*). These close analogies indicate the site's contemporaneity to the central European Urnfield II period, and the relationship with the Middle Danubian Velatice pottery is striking. These central European settlements in Macedonia, however, were suddenly destroyed by fire, and settlements with Macedonian pottery replaced those of the central European invaders. In the top of the burnt layer and just above it were found a few sherds in the Granary Style, which is placed by Furumark (1941, pp. 102, 115) in Late Helladic III C_1, 1230-1125 B.C. This probably shows that the invaders from the middle Danube basin were driven out at some time within that period. It is of interest to note that sherds of Late Bronze Age Macedonian pottery with long triangle pattern painted in black were found in the Urnfield II (Velatice) hill fort Tekovský Hrádok in western Slovakia (reproduced by Paulík, 1962, fig. 38; analogies in Macedonia: Heurtley, 1939, fig. 90). It seems then that the Middle Danubian people brought samples of painted pottery to their homeland during the twelfth century B.C.

The urnfields in Hama, Syria (Riis, 1948) also seem to be connected with central European invasions. Among the grave goods there are bronze or iron flange-hilted swords of undoubtedly central European type, violin-bow fibulae with a leaf-shaped or stilted bow and arc fibulae. All of these finds are dated to the earliest phase of the urnfields of Hama, *ca.* 1200-1075 B.C. The urns were painted, but this only indicates the influence of local potters. Under conditions of war the central Europeans certainly could not transport their pots such distances. However, gray bossed pottery was found by the Syrian Expedition of the Oriental Institute in Tell XXX Ta'yinat near Antioch (unpublished; oral information given to Dr. Hencken by Dr. Swift).

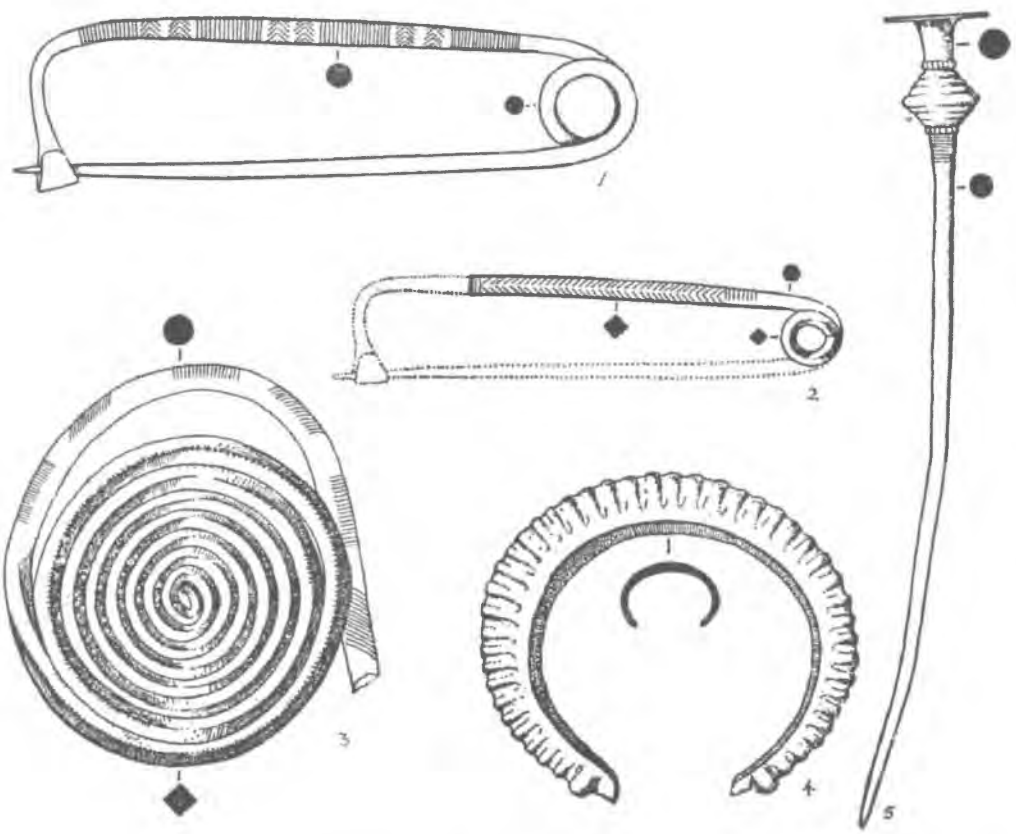


FIG. 232 *A*. **1, 2,** violin-bow fibulae; **3,** spiral plate; **4,** bracelet; and **5,** pin with elevated biconical ribbing on the neck from the cave of Hrustovac near Vrhpol in Bosnia. Scale less than 1/1. *After* Starè, 1953.



FIG. 232 *B*. **1,** violin-bow fibula from Taline, barrow XV, grave 1; **2-6,** violin-bow fibula and bracelets from the cemetery of Štrpci, Glasinac, Bosnia, barrow I, grave 1. Scale 1/2. *After* Benac and Čovic, 1956.

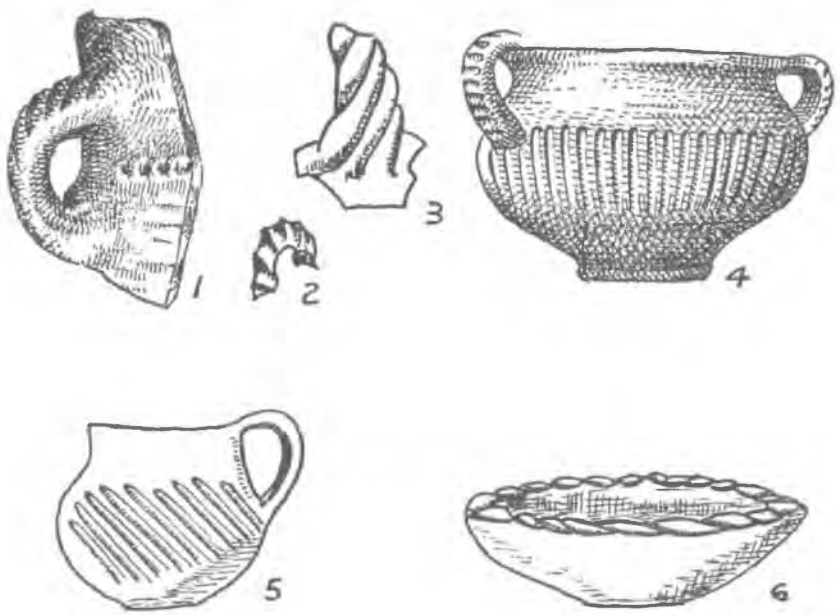


FIG. 233 *A*. Fluted pottery from Macedonia. **1-4,** handles of amphorae and amphora from Vardarophtsa; **5,** jug and **6,** dish from Vardina. Scale approx. 1/6. *After* Heurtley, 1939.



FIG. 233 *B*. Early Urnfield vases from central Europe. **1,** Prague-Bubeneč, Bohemia; **2,** Winden, lower Austria; **3,** Dürrweitz near Döbeln, Saxony; **4, 5,** royal tomb at Očkov, western Slovakia. Scale approx. 1/6. *After* Stocký, 1928 **(1)**; Pittioni, 1954 **(2)**; Grünberg, 1943 **(3)**; Paulík, 1962.



FIG. 234. Pots from Troy VII B_2. Scale 1/3. *After* Blegen et al., 1958.

The coarse knobbed ware from Troy VII B_2 (fig. 234), dated to the twelfth century B.C. (Blegen *et al.*, 1958, 147) has close relatives in eastern central Europe, particularly in eastern Hungary and western Rumania. Similarities can be seen in the pottery of the Gava, Mohi, and Czorvas cemeteries (finds are in the Budapest and Szeged museums) and even more in the pottery of the cemetery of Mezöcsat in northeastern Hungary (pl. 76), which is somewhat later and is dated with Urnfield III objects. A striking similarity can be noticed not only in the application of knobs, but also in ornamental motifs (fig. 234, *4*; pl. 76, *10*, *11*) and the shape of handles. Cups and jugs had one or two high raised handles (fig. 234, *1*, *2*; pl. 76, *1*, *3-5*). Vases with two high handles are also characteristic of the late Monteoru or Noua culture in eastern Rumania and Moldavia (fig. 157).

The cultural layers succeeding the destruction of the Hittite Empire are assumed to belong to the Phrygians. The Boghazköy and Alishar settlements were reoccupied in the twelfth century by Phrygian feudal lords, and from then onward the continuity of Phrygian settlements is well documented in stratified and single layer sites (Lloyd, 1956, pp. 192 ff.). In Boghazköy a vase-headed pin was found which has close relatives in the middle and upper Danube Urnfield sites of the Urnfield II phase (like fig. 84, *7*).

Between *ca.* 1225 and 1187 B.C. the eastern Mediterranean states were shaken or destroyed, the cities plundered and left burning. The catastrophic finale to the Mycenaean culture, the collapse of the Hittite Empire, the destruction of Kode in Cilicia, Carchemish on the Euphrates, Arasa (Alasia) in Cyprus, Arvad on the Phoenician coast, and the raids on the Egyptian Delta are documented not only by the archaeological evidence, but are mentioned by Egyptian sources of Merenptah and Rameses III, Assyrian inscriptions of Tiglat-Pileser I, and the Bible. The Egyptians remembered the fearful events with horror. Their inscriptions say that no land in Anatolia and Syria could stop the aggressors, who sacked one city after another with a hitherto unknown ferocity.

The great migration and devastation traveled by land and sea from the Balkans via Anatolia to Syria and Egypt, and from Greece to Crete, Cyprus, the other Mediterranean islands, and Egypt. Hence the name of the conquerors, Peoples of the Sea.

The Egyptian and Assyrian inscriptions and the Bible give the names of the aggressors. The most important were the Philistines of the Bible (the *Prst* in the Egyptian sources, vocalized as *Pe(l)sata*;

the *Palasta* or *Pilištu* of the Assyrian sources, vocalized as *Pelašet:* Dussaud, 1953, p. 86). They occupied the coastal strip between the Carmel Peninsula and Gaza and settled permanently in Palestine, named after them. They came from Crete, but also traveled across Anatolia and Syria with their wives and children on four-wheeled wagons. Hebrew memory spoke of their gigantic chiefs, with helmets, breastplates, large shields, iron-pointed spears, and slashing swords. The reliefs in the Rameses III temple of Medinet Habu, carved with scenes of the wars of Rameses III in Syria and Lybia, show imprisoned and chained Philistines without armor. They had feather head-dresses, short kilts ornamented with tassels and horizontal and vertical trimmings. Their noses were straight and they were beardless (Galling, 1928, Tafel 36a). But on another relief portraying the Philistine ship with sails, they are shown with armor made in bands with larger plates attached, and with a spear, dagger, and round shield. According to the Bible, the Philistines were uncircumcised; hence they did not belong to the Mediterranean race.

This Philistinian upper class (chieftain's?) attire is not unsimilar to that incised on the symbolic and heavily stylized anthropomorphic clay figurine from Kličevac in Banat, northern Yugoslavia. The figurine is dressed in a long skirt with a rich decoration in bands, a broad belt with hanging circular pendants decorated with concentric circles, pendants attached to the necklace, and similar pendants on the back of the head (fig. 235). On both sides of the breast there were two star-shaped plates similar to the plates of Čaka armor (fig. 214). A long skirt was apparently used by chieftains and nobility as ceremonial attire; male deities of central European religion were dressed in a similar manner. The Bronze Age anthropomorphic figurines from northern Yugoslavia, Slovakia and Rumania all wear long skirts. Clay figurines from the Vattina-Gîrla Mare urnfields in Serbia and southern Rumania are portrayed with richly decorated skirts.

The Philistines (*pelašet, pelist-īm*) are identified by linguists with the Pelasgians. Pelasgians are mentioned in the earliest Greek records: Homer, Hesiod, Herodotus, Thucydides, Hecataeus, Aeschylus and Sophocles, but these records are all far removed from the thirteenth century B.C. and speak either of



FIG. 235. Clay figurine of a central European deity or royal personage from Kličevac, northern Yugoslavia. An isolated find. *After* Kossack, 1954.

traces of Pelasgians in Greece or merely of memories about them. In the Homeric poems the Pelasgians appear as the allies of Troy settled close to the Hellespont. The *Iliad* also refers to the district of Argos near Mt. Othrys in Thessaly as Pelasgic. In the *Odyssey* Pelasgians appear in Crete. Hesiod refers to Dodona as the "Seat of the Pelasgians", while Hecataeus refers to Pelasgus as king of Thessaly. To Aeschylus and Sophocles Argos in the Peloponnese is the Pelasgian land. Herodotus knows of actual Pelasgians on the Asiatic coast of the Hellespont as well as near Creston on the Strymon. The islands of Lemnos and Imbros had also, according to Herodotus, a Pelasgian population, conquered by Athens at the close of the sixth century B.C. The sources indicate, though not definitively, that there were a northern people, but their actual traces were also indicated in the Peloponnese and Crete.

The name Pelasgi which stands for Pelak-skoi or Pelag-skoi has been connected with πέλαγος "the sea" and it seems also to be related to the name of the Illyrian or semi-Illyrian Pelagones of Macedonia. Here we catch the tie between the "Peoples of the Sea" and the Illyrians. To the linguist Krahe the Philistines were of Illyrian origin (Krahe, 1949, pp. 15, 16). Thus the archaeological and linguistic data make the assumption possible that the Pelasgians were not, as it was usually thought, a pre-Greek people who lived in Greece (Dussaud, 1953, p. 86; Georgiev, 1958, pp. 102ff.), but northern invaders who destroyed the Mycenaean civilization and consequently fell upon the eastern Mediterranean states jointly with a number of other tribes collected in the Balkans, Greece and perhaps Anatolia. Were the seafarers coming via the Adriatic not Pelasgians whom the inhabitants of Pylos feared and against whose attack they made the preparations expressively described in the Linear B tablets of Pylos? Actual traces of Pelasgians in Greece and Crete mentioned by early Greek historians very probably refer to the remnants of the Pelasgians in the postwar period. Some provinces seem to have been controlled by them up to the Classical Greek period.

According to Egyptian records of the period of Rameses III, the Philistines were allied with several other peoples, the *tśkl* (*tsikal*), the *śrdn* (*shardana*), *d' 'n' w* (*dana-ana*) and *twrŵs'* (*tursha*). Were the *tsikal* and *shardana* the Sikels who settled in Sicily and the Sardinians who settled in Sardinia? Future research must cast the deciding vote. Many have presumed so (cf. Schachermeyr, 1929, pp. 27-57). *Danaans* are usually identified with the Homeric Danaoi of Argolis as the other name for the Achaeans, *Tursha* are held to be the early Etruscans, whose central Balkan origin can be guessed on the basis of the curious correspondence of pottery types between early Etruscan Etruria and the Gîrla-Mare and Verbicioara group on the Danube in northeastern Yugoslavia and southwestern Rumania (as I was informed by Dr. Hencken).

The names of the Peoples of the Sea mentioned in the historic records seem to be connected with the peoples living in the Adriatic and the Aegean area. Hence the name "the Aegean migration" used by historians. However, these records are far from sufficient to reconstruct the whole picture of the great expansions, which involved many nations and whose roots have to be looked for in central Europe.

Archaeological and linguistic data indicate that the beginning of the movement must be connected with the expanding central European people. Judging from river and place names, the middle Danube basin and the Lusatian territory may have belonged to the Proto-Illyrians.

Outside the northwestern part of the Balkans and the eastern Adriatic coast, where the presence of Illyrians is firmly established, Illyrian names, many of which are mentioned in the Greek and Roman sources, are found in the Dorian-northwest Greek area, in Macedonia, in Moesia, in northwestern Anatolia (Troy), in the western and eastern Greek islands, in Crete, and in some areas of Italy, in particular Apulia and Calabria (the Messapic inscriptions). Linguists speak with certainty of Illyrians in the eastern Alpine area, in Noricum, Pannonia, Bohemia, and also in present-day eastern Germany and southwestern Poland, especially Silesia (Jokl, 1926; Krahe, 1955, Pokorný, 1938). A series of tribal names, mentioned by Ptolemy, Pliny, Tacitus, and others, and place or river names are repeated several times in the vast area between Poland and Crete. Some of the central European river names assumed to be Illyrian are: *Marus*, the tributary of the Danube, present-day *March* or *Morava* in Moravia and lower

Austria; of the same origin is *Mora*, tributary of Oppa; *Oppa*, the left tributary of Oder; *Aupa*, left tributary of the upper Elbe (Illyrian *āpa* or *upa* means water); *Cusus*, tributary of the Danube, east of Morava (the place name *Cusum* repeats in Dardania and Pannonia); *Sidra*, left tributary of Bóbr (Bober) in western Poland which repeats in place names *Sidróna* in Liburnia and *Sídraga*, name of a district in Illyria; *Natusis* must have been the earlier form for *Noč* or *Noteč* (*Netze*), it is compared with *Natiso*, present *Natisone* in Venezia. The spread of Illyrian river, place, and tribal names in central Europe is shown on a map by Polák (Polák, 1956, p. 20).

The distribution of Illyrian names in central Europe covers the same areas as did the Middle Danube-Knovíz-Lusatian culture of the early Urnfield period. Ilyrian-Germanic and the Illyrian-Baltic language relationships are another basis for the assumption that the Middle Danube-Knovíz-Lusatian people spoke Illyrian (or rather Proto-Illyrian) dialects. There are a great many lexical, morphological, and other structural elements which are extremely similar in Illyrian, Germanic, and Baltic place, river, and personal names. A special affinity exists between Illyrian and Baltic (Prussian, Lithuanian, and Lettish) names which is witness to their long neighborly co-existence (Krahe, 1954, pp. 104 ff.). The archaeological evidence supports these relationships: throughout the Bronze Age extremely close cultural relations existed between the Únětice-Tumulus-Lusatian on the one hand and the southeastern Baltic and Northern Bronze Age cultures on the other.

The first vigorous expansion to eastern central Europe at the end of the fifteenth century B.C. (the "Tumulus expansion") resulted in destruction of the Early Bronze Age cultures in Hungary and northwestern Yugoslavia. The Proto-Illyrians apparently occupied all Pannonia and present-day northwestern Yugoslavia as far south as Sarajevo in Bosnia. As was mentioned above, settlements with materials of Middle Danubian character dating from the early Urnfield period are present in all the Yugoslavian Adriatic area down to Montenegro (and probably to Albania, the country which is as yet not known to prehistoric archaeology). At the beginning of the great expansion to Greece and the eastern Mediterranean area, the eastern Adriatic lands seem to have been already inhabited by tribes of Illyrian background. The Adriatic waters must have been familiar to the central Europeans at least from the beginning of the fourteenth century B.C. and it is no wonder that at the end of the thirteenth century B.C. their ships sailed down to Epirus, Peloponnese, Crete, and further east.

Obviously, the expansions in the second half of the thirteenth century B.C. resulted in a considerable differentiation of the language and caused the birth of separate languages of Illyrian background like Sikel in Sicily and Messapic in Apulia and Calabria. Linguists are inclined to connect them with Illyricum and Epirus across the Adriatic (Whatmough, 1937, pp. 111, 340; Krahe, 1949). Traces of Messapic are known in Crete and the Peloponnese and this may indicate that the same people went in several directions, that is, both down to Greece and to southeastern Italy.

The Veneti of northeastern Italy, whose language is placed between Illyrian and Italic (Krahe, 1955, pp. 110 ff.), are also central European in origin. Bronzes of central European appearance in the area of Treviso and Venezia date from the fourteenth century B.C. and later.

A certain province of the central European culture must have belonged to the Phrygians and their relatives, the Armenians, who also went down to Greece and entered Anatolia and there caused the end of the Hittite Empire and established Phrygian rule. As the Phrygians are the certain destroyers of the Hittite Empire, let us see first how linguists trace the Phrygian migration.

In his study of 1950 devoted to the Phrygian episode in Hellas, Kretschmer hypothesizes that the Phrygians destroyed the Mycenaean culture and then moved from the Balkan Peninsula to Anatolia. On the basis of Ptolemy's (2nd century A.D.) mention of *Phrugisatis*, "the seat of Phrygians", in free Germania which is located by Polaschek, the authority on Ptolemy, in the valley of Vltava (Moldau) south of Česke Budějovice (Budweis) in southern Bohemia, he assumes that the Phrygian homelands extended as far north as Bohemia (Kretschmer, 1950, p. 174). In Ptolemy's times the Germanic people in this area must have found either actual remains of the Phrygians or merely names. From central

Europe the Phrygians moved southwards to the Adriatic, where traces occur in island names, from the Adriatic coasts to Macedonia and Greece. They touched the Bermion mountains between Edessa and Haliakmon. Here legend places the gardens of the Phrygian King Midas (Herodotus, VIII, p. 138). In the area east of Chalkidike Phrygians are mentioned as late as 493 B.C., when they attacked the Persians. Among other tribes allied to the Phrygians Kretschmer mentions the Armenians. The town *Armenion* is between Larisa and Pherai. The name *Ormenion* or *Orminion* is repeated in Anatolia. *Olympus* must be Armenian or Phrygian. In the Phrygian area of Anatolia it is repeated five times (in Bithynia, Phrygia Minor, Galatia, and on the Phrygian-Pisidian border). The Phrygians and Armenians must have been very closely related; Herodotus (VI, 73) says that the Armenians came from Phrygia and, as Phrygian allies, they were similarly armed.

The names connected with the Phrygian religion also point to Phrygian traces in Greece. The cult of Rhea, who was one of the incarnations of Mother Earth and, as the etymology of the word indicates, was connected with the meaning of prosperity (Kretschmer, 1950, 176), was known to the Greeks only in Phrygian Anatolia. But that it was known to the European Phrygians is witnessed by the name of the Bay of Rhea (Ρέας κόλπος) for the Ionian Sea. The god Kronos, together with his other name Akrisios, and his twin brother Proitos are also presumed to be of Phrygian origin. The occupation of the Argive castles is ascribed to the twin brothers, Acrisios and Proitos.

The route by which the Phrygians went from the north to Argos is shown by place and cult names or legends to have been the following: from the Bermion mountains, they passed Olympus and went to Larisa in Thessaly, thence down along the Oita mountains. To the south is Mideia, the city of King Midas, later called Lebadeia. Between Boeotia and Attica there is a place called *Ta Phrygia*. Phrygians spread over the whole Peloponnese, except Arkadia.

The people who destroyed the Hittite Empire were first identified in an Assyrian account of how Tiglath Pileser I, in the twelfth century B.C., routed a "Muski" army of 20,000 men under five kings, which had invaded northern Mesopotamia. There is a lapse of several hundred years to the time of Sargon II in the eighth century B.C. when the "Muski" again appear in the records and can be identified with the Phrygians of Greek tradition. In the early centuries of the first millennium B.C. the Phrygians extended their frontiers eastwards to Taurus and the upper Euphrates. In the second half of the eighth century B.C. they were allied with Urartu against Assyria, but the Cimmerian invasions from the northern Pontic area via the Caucasus at the end of the century caused their downfall.

The Phrygian language is very much related to Thracian and also to Illyrian. There are numerous grammatical similarities between Phrygian and Thracian; relations with Greek can also be traced, but what is more important for the question of Phrygian origins, are the close relations of Phrygian with Slavic and Baltic. These contacts are assigned by Jokl (Jokl, 1928) to the prehistoric period when Phrygians lived further north and had direct contacts with the Slavs and Balts. Linguistic relationships remain the basic source for the location of the Phrygians, who seem to have separated the Dacians and Thracians from the Illyrians. In the north they must have been the immediate neighbors of the Slavs, and probably through the mediation of the Slavs, they had contacts with the Balts.

Is Ptolemy's *Phrugisatis* a firm enough basis to locate Phrygian origins in Bohemia? As the only written mention of the presence of Phrygians in central Europe it cannot be ignored. However, a name like "the Phrygian seat" is not the final proof that Phrygians lived there en masse. We must remember that Ptolemy mentioned them long after the Phrygian expansion southwards and after the Scythian and Celtic migrations. Besides, from the river and place name studies it is plain that Bohemia was included in the distribution area of "Illyrian" names. Old Phrygian names in central Europe have not yet been identified by linguists. My guess, which gains some support from the archaeological evidence, is to look for the Phrygian origin in the area east of the Middle Danube group: in eastern Hungary, eastern Slovakia and northwestern Rumania, where neither Illyrian nor Dacian names have been identified. This is the realm of the Tisza urnfields and the most impressive bronze hoards. From all of the Urnfield

groups in central Europe only the Tisza group has yielded pottery which is related to the Anatolian pottery of the twelfth century B.C.

The great expansion involved the whole Apennine Peninsula, Sicily, the Adriatic area, the southern Balkans, Greece and Crete, Anatolia, the east Mediterranean islands, Syria and Egypt. This was not an "Aegean migration", but basically a "central European expansion", during which the most powerful units of Bronze Age Europe fell upon the south with crushing force: the North Alpine people upon mainland Italy, the Middle Danube people upon the whole eastern Adriatic area, southeastern Italy and Sicily, Greece, Crete and the eastern Mediterranean area, and Tisza people upon the southern Balkans, Greece and Anatolia. On their way south they acquired new allies (among them, Etruscans and Danaans). The application of "Peoples of the Sea" in the historic records as a name for many tribes indicates allied forces in the eastern Mediterranean area. The Mycenaean civilization apparently was destroyed also not by one tribe, but by allied forces of many tribes of Illyrian and Phrygian background. What role the Dorians played during these wars, remains for future research to solve.

The process of expansion was carried out partly in the form of an extension of settlements as in Italy and the Adriatic area, and partly in exerting political hegemony accompanied by strong cultural influence as in Greece, Anatolia and Syria. In some areas, in Egypt for instance, the wars resulted merely in devastation.

Finally, I wish to pay homage to the linguists who traced the Illyrian and Phrygian expansions before archaeologists had tackled the subject: Krahe, Pokorný, Vasmer, Kretschmer, and others. The accumulating archaeological materials are in gratifying agreement with linguistic reconstruction, although some of them need revision. Perhaps the archaeological evidence will enlighten many as yet unanswered linguistic questions.

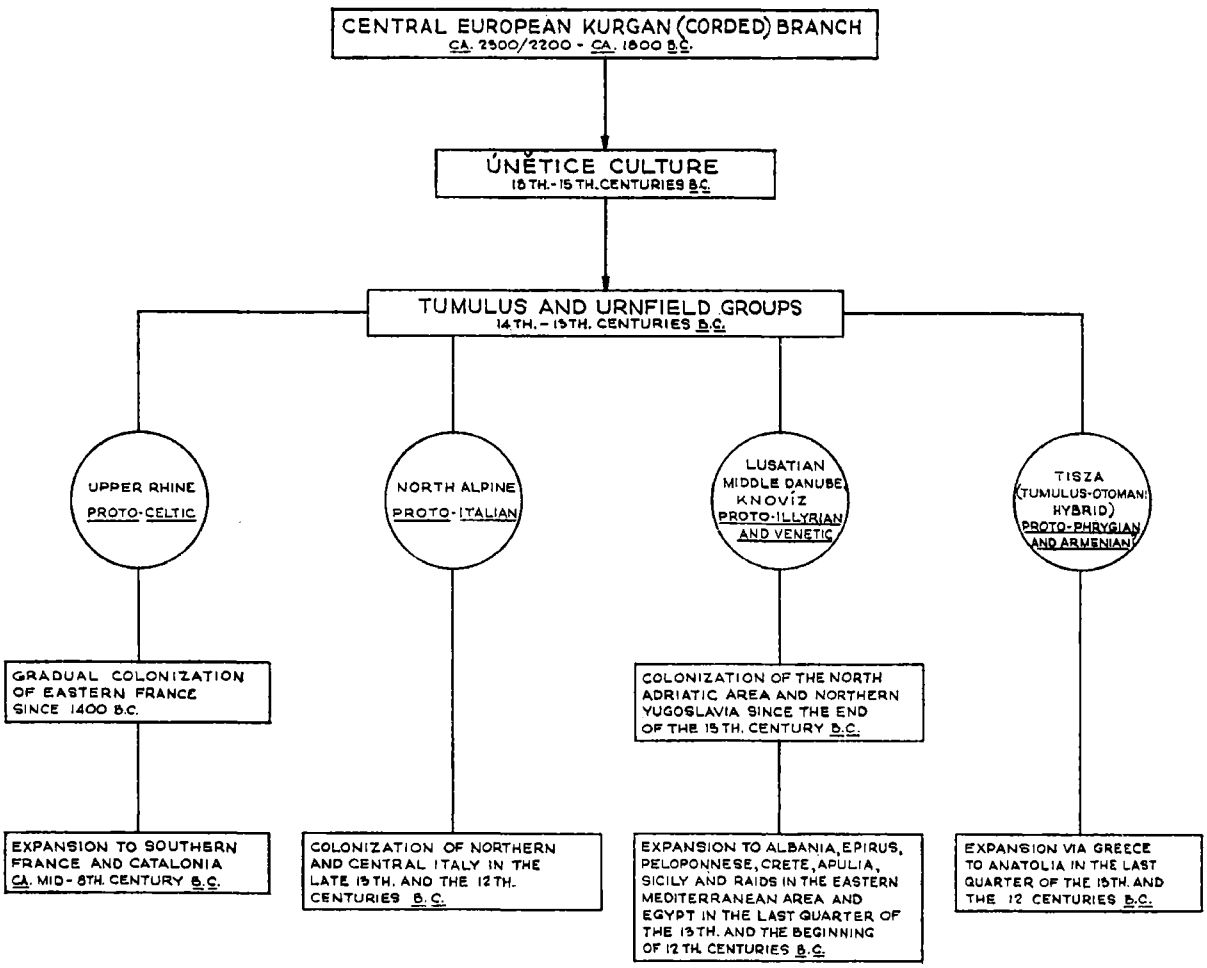
For Krahe the Illyrians were the most important people; only they caused a great impact on further developments in history. He ended his booklet entitled *Die Indogermanisierung Griechenlands und Italiens* saying "Ohne die Illyrier kein Rom und Römertum – und ohne die Illyrier kein Sparta und kein Doriertum!" (Krahe, 1949, p. 14). In view of the present archaeological evidence, we may somewhat revise his statement and say that the expansion and wars carried out by the central European Proto-Italic, Proto-Illyrian and Proto-Phrygian tribes exerted a tremendous impact on further developments in history. Without their conquests, movements and influences the rise of Villanovan and Etruscan Italy, the rise of Illyrian Hallstatt, the beginnings of Dorian Greece, and the rise of Phrygian Anatolia are unthinkable.

Early Urnfield expansion, linguistic evidence, and later historic developments definitively prove that the people of the Únětice-Tumulus-Urnfield culture were Indo-European speakers. The nuclei of the Celtic, Italic, Illyrian, Venetic, Phrygian, and Armenian linguistic groups are to be looked for within the limits of the central European Early and Middle Bronze Age, their formation and destiny are connected with expansions to eastern central Europe and to eastern France at the end of the fifteenth century B.C., to Italy, southern Yugoslavia, Macedonia, Greece, Anatolia, and the eastern Mediterranean area in the last quarter of the thirteenth century B.C., and to southern France and Catalonia around the middle of the eighth century B.C.

A *tentative* scheme of differentiation and expansions of the central European Bronze Age bloc is given in a tabular form on p. 340.

b. *The Late Urnfield period; from the end of the twelfth to the end of the eighth centuries B.C.*

The post-expansion culture did not show signs of decline or disintegration. Although divided into a number of local groups, the Late Urnfield culture continued to be unified. Close intergroup relationships are seen in the intensive trade of every group with the metallurgical centers in the Carpathians, the Alps,



and the central German-Bohemian mountains, leaving identical objects spread between France and the eastern Carpathians. The whole period is marked by prosperity, creativity, and dynamism.

The Late Urnfield period is technologically the end of the Bronze Age, although iron was known even earlier. The central Europeans must have learned about the new metal while expanding to the southeast. In Transcaucasia and Anatolia, iron was used from the fourteenth century B.C.; by not later than the twelfth century, the Philistines and other "peoples of the sea" began to use iron for weapons. Iron swords of central European type are known from Cyprus (Schaeffer, 1952, figs. 105, 107), and the Bible tells us that the Philistines introduced iron into Palestine. From the end of the second millennium B.C., single iron artifacts appeared in graves and hoards of central Europe. An iron knife, for instance, was found in one of the graves of the large cemetery at Chotín in western Slovakia (Dušek, 1956, p. 653). The cemetery belongs to the Middle Danubian "Podolí" group, and from the bronze artifacts in other graves it can be presumed that the iron knife may be dated to as early as the eleventh century B.C. An iron ring came to light in an urn grave of Babenhausen, district of Dieburg, Germany, in association with a bracelet decorated with a herring-bone motif and with a socketed hook (Hundt, 1954), which allows us to place the grave within the twelfth century B.C. (i.e., during Urnfield *II*). An iron flange-hilted sword from the offering cave at San Canziano (Fliegenhöhle bei St. Kanzian) near Trieste in Istria (fig. 107, *10*) may also belong to the end of the twelfth century B.C. By the beginning of the first millennium B.C. iron was used more frequently. An iron axe and anvil were present in the hoard of Niedzieliska (fig. 115), typified by the Jenišovice cup and the T-handled cauldron (diagnostic Urnfield *IV*

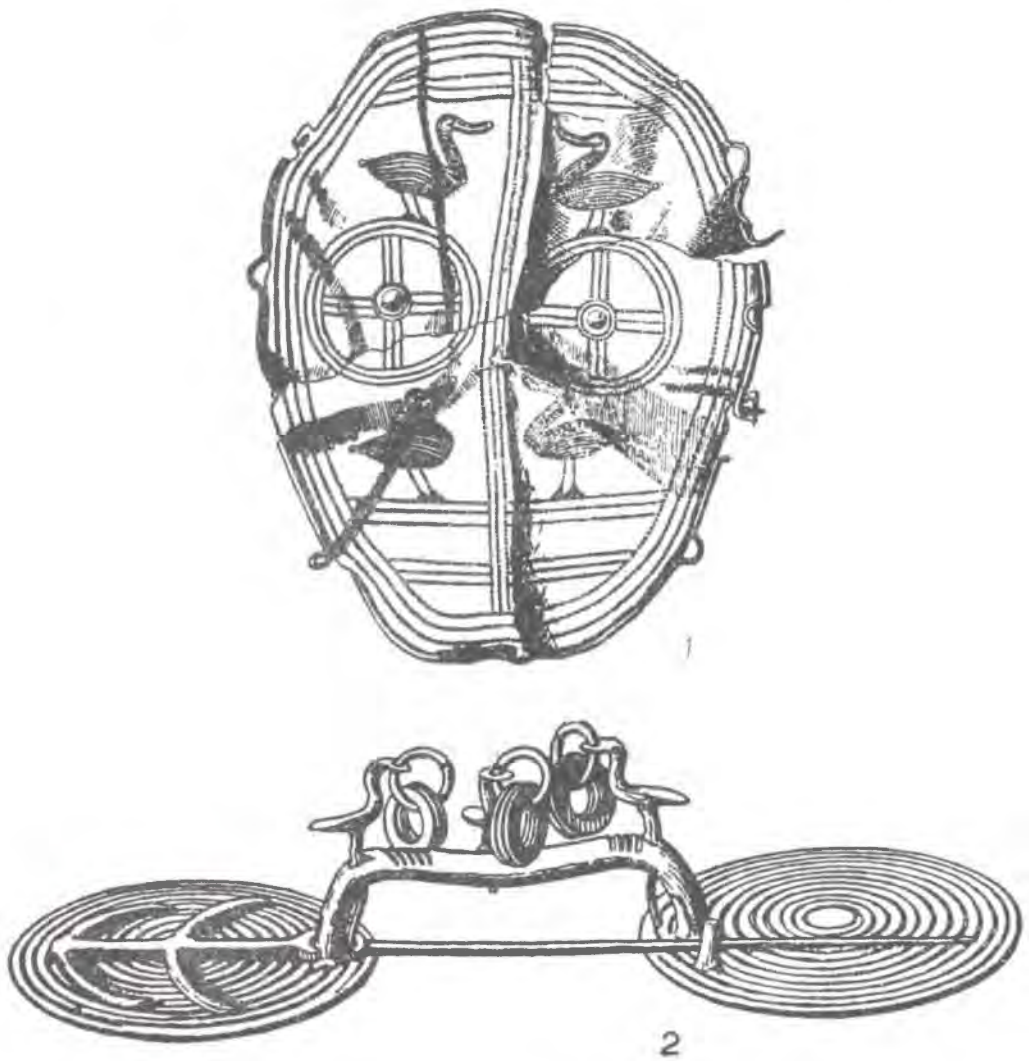


FIG. 236. **1**, greave from Rinyaszentkirály; **2**, fibula from Kolzig, Silesia.
Scale: **1**, 1/2; **2**, **3**, 1/1. **1**, *after* Merhart, 1957; **2**, *after* Zotz, 1934.

artifacts); and two lugged iron axes from the hoard of Bîrlad in Moldavia (fig. 159, *4*, *5*) belong to the ninth or early eighth century B.C.

Iron infiltrated very slowly; about four centuries passed before it began to be effectively used. Thus, this Late Bronze Age period can be regarded as a "Bronze-Iron Age". In other words, iron was known but its use did not supersede that of bronze. Bronze metallurgy had reached such a high degree at that time that in the beginning iron could not have been considered of revolutionary importance.

In the Late Urnfield period, "bird-sun" symbolism was common to the whole of central Europe and its zones of influence. Symbolism became now more expressive, variable, and baroque.

The most characteristic motif was the bird in combination with a circle, ring, wheel or vehicle; birds sit on the axle or rim of a wheel or adorn axle pins (pl. 64). They can also be connected with a sun-disc (fig. 236; *1*). Two birds may flank a radiating sun, wheel, or disc. The most beautiful examples are embossed on situlae (figs. 116; *5*). Small birds frequently sit on the shoulders of pots. Half-bird, half-animal beings are usually present when a cult wagon is depicted (pl. 65). Two or more horned birds may pull a two-, three-, or four-wheeled wagon, or the vehicle itself may be the birds' bodies. A horned bird may appear in the shape of a vase (pl. 66). On spiral fibulae, birds with rings in their beaks perch on

the bow (fig. 236; *2*). A single bird, a double bird, or the stylized heads of birds were used as pendants on a bigger ring or wheel; they hang in groups of three or more. Stylized bird figures decorate the hand guards of swords (fig. 166; *3*). This fascination of the Urnfield people with birds is especially characteristic; human figures, horned animals, or horns only also occur, but less frequently.

The sun-disc, the concentric circle, the wheel, the cross, the water bird, the bull horns, and the clattering pendants represent a gamut of "celestial" symbolism, which is inseparable from the role of light, motion, and sound in symbolism, the functions of the sky deities, the idea of the sun as a life-giving force, and the inextinguishability of life. The water bird, one of the prominent symbols of fertility, appears in the contemporary oral tradition and in written records. It was well suited as a dynamic mediator between the celestial and earthly spheres in the religious symbolism. Life power is traditionally concentrated in the bull or in his horns. The combination of a bird figure with a sun, bull, wheel, or the horns, and the doubling or multiplying of birds' heads, pendants, and wheels was intended to strengthen the symbolic and aesthetic power of the ornament. An outstanding composite symbol, which may be mentioned here, is the Dupljaja male deity from Serbia which is decorated from the neck to the bottom of the skirt with spirals or concentric circles (pl. 67; *2*) and mounted on a bird chariot (pl. 67; *1*). The wheels were also decorated with concentric circles, and a cross within a circle was incised on the bottom of the wagon (pl. 67; *3*). Such a cult chariot could have been drawn through the fields to ban evil spirits and to ensure the fertility of crops. In its general symbolic meaning the Dupljaja wagon was close to that of the large Trundholm (Denmark) golden sun-disc placed on a horse-drawn wagon. To the same series of symbols belong the golden omphaloi decorated profusely with bands of bosses, concentric circles, or wheels, which probably also were mounted on a wagon and pulled through the fields. An impressive example was discovered in 1953 at Etzelsdorf near Nürnberg, Germany (Müller-Karpe, 1958, p. 28, Abb. 12). It was 0.95 m high, of outstanding workmanship, and divided into many horizontal bands with minute geometric decorations (e.g., circles, wheels, and striations).

Funeral wagons with water bird heads decorating the axle caps were used especially in Late Urnfield times for the burial of royal personages or warriors. The wagon grave from Hart in upper Bavaria, already mentioned, included a cup, a sieve, a bucket (fig. 111; *13-15*), a sword hilt (fig. 111; *1*), a knife, and other finds that place the grave to around 1100 B.C. Whether this custom was alive before the Urnfield period in central Europe, cannot be ascertained due to the lack of evidence. In Early Geometric Greece, funeral wagons were used and burned containing the dead (in Kerameikos: Kerameikos, 5, 1954, pp. 21 ff.). Also, the bodies of Hittite kings of the fourteenth century B.C. were brought to the cemetery in a special wagon, as funeral texts show. Thus, perhaps the custom of wagon burial was brought to central Europe from Anatolia in the early twelfth century B.C. However, on the other hand, the idea of placing miniature wheels or clay wagon models in graves as symbols of wagons was already alive in eastern central Europe throughout the earlier Bronze Age periods; the earliest traces of wagons in graves come from the Kurgan pit-graves in the lower Dnieper and the lower Volga region and date from the end of the third or the beginning of the second millennium B.C. The Kurgan people must have brought this custom to Europe and Anatolia. If actual traces of wagons have not as yet been found in central Europe before the Late Urnfield period, this does not mean that the custom was not practised. The wagon could have been burned up and no traces left. Even during the Late Urnfield period, the only wagon parts that survived were decorative bronze mountings and rivets, as in the case of Hart.

Urnfield *III-V* (which in the old terminology approximately coincides with Hallstatt A_2, B_1, and B_2) belongs to the Late Bronze Age period before the beginning of the Iron Age and the true Hallstatt era. Bronze artifacts (e.g., beaten bronze vessels, fibulae, and swords) produced in certain metallurgical centers and diffused all over the Urnfield region, when considered along with local pottery types and stratigraphy, have made it possible to distinguish these consecutive phases, which apply to all the Urnfield groups. Now I wish to recapitulate the most characteristic types of each phase of the Late Urnfield period.

Urnfield III (from the end of the twelfth century to *ca.* 1000 B.C.) is typified by increased production of bronze vessels. In many cases, the vessels did not appear singly, but in an assemblage composed of a bucket, a sieve, and many cups. They probably indicate a wine trade and no doubt were designed for the aristocracy or only for chieftains' headquarters. Such an assemblage of cups, a sieve, and a bucket was found in the hoard of Dresden-Dobritz (fig. 109) and another in the hoard of Středokluky near Prague (Kytlicová, 1959). Essentially this same grouping of vessels appeared in most exceptionally rich graves, for instance in the wagon grave of Hart (fig. 111; *13-15*); also in a grave of Žatec in Bohemia (pl. 68, *1, 2*) and in a grave of the Lusatian barrow of Schweinert in Saxony (fig. 238B). In these graves were also found swords, double-edged razors, knives, gold finger-rings, bronze bracelets or neck-rings, and a great number of pots. It seems that the wine trade (if this was wine rather than some other alcoholic drink) was carried on by local kinglets and nobility, just as it was in late Mycenaean Greece.

Flange-hilted and bronze-hilted swords of Urnfield *III* differed from those of the earlier Urnfield period by their wider blades (see the flange-hilted sword from Wollmesheim: fig. 108, *1*) and by the decoration of their bronze hilts. Characteristic hilt decoration was composed of three horizontal bands of running spirals, zigzags, or striated triangles, divided by three plain or striated ridges (fig. 111, *1*).

Swords were symbols of rank. Usually they appear one to a grave, as at Hart, Wollmesheim, and many other sites, and always in association with other finds: a double-edged razor (pl. 68, *3*; fig. 110, *2*), a knife (pl. 68, *4*; fig. 110, *4*; 111, *5*), and bronze arrowheads (figs. 108, *7-9*, *11-13*; 111, *2-4*) indicating the use of a bow. Thus, warriors were equipped both with swords and with bows.

The earlier straight-bladed swords were mainly thrust weapons, while the wide-bladed types served for thrust and slash. Bronze-hilted specimens usually have a perforation in the pommel, probably for a leather strap to fasten the sword to the wrist or fist. Müller-Karpe thinks that the strap wound around the fist prooves that these swords were used as slash weapons (Müller-Karpe, 1961, p. 91).

Swords often appear in hoards with spearheads and with socketed and winged axes, as in the hoard of Kér (fig. 107). In the tombs at Moulianá in Crete, central European swords and spearheads appeared in association (fig. 106, *1-4*); the latter piece still retained the flame-shape (fig. 106, *3*) typical of the early Urnfield period, and they had a pair of rivets below the leaf.

Beautifully decorated greaves found in the hoard of Rinyaszentkirály in northern Hungary (fig. 236, *1*) and Kuřim in Moravia (pl. 68, *5*) are so far the earliest known greaves in central Europe (Merhart, 1957). The date of the Rinyaszentkirály greave is indicated through its association with a bronze-hilted sword, a spearhead with parallel ridges along the socket, socketed celts with a letter "V" decoration, a socketed chisel, a knife with a ring handle, and a fragment of a belt plate ornamented with rows of bosses and parallel ridges, all of which place it most probably in the beginning of the Urnfield *III* phase. The date of the Kuřim greave can only be guessed from its decoration: rows of small and large bosses, similar to the decoration of Urnfield *III* bronze vessels. The Rinyaszentkirály greave had four pairs of loops attached to the wire rim which served to fasten it to the knee with strings. The central European origin of the both types of greaves is incontestable. Their decoration is purely central European, and their origin, very likely in the early Urnfield period, should be looked for south of the Carpathians in northern Hungary and Slovakia.

Arc fibulae like the one from Moulianá (fig. 106, *5*) have analogues in Previllanovan Italy in the late twelfth century B.C.; in central Europe they are rare and are confined only to its southern zone. Central Europeans continued their flat-bow fibula with the spiral catch-plate and the type with two large spiral plates at the end connected with a bow to which bird figures were attached (fig. 236, *2*) or with a spiral or snake-shaped bow (fig. 108, *14*).

In the chapter on chronology, it was indicated that the heavily ribbed style of bracelets and pins declined around the end of the twelfth century B.C. Bracelets were now either geometrically decorated or twisted, and pins became long with disproportionately small globular, conical, or biconical heads (fig. 240, *6-12*).

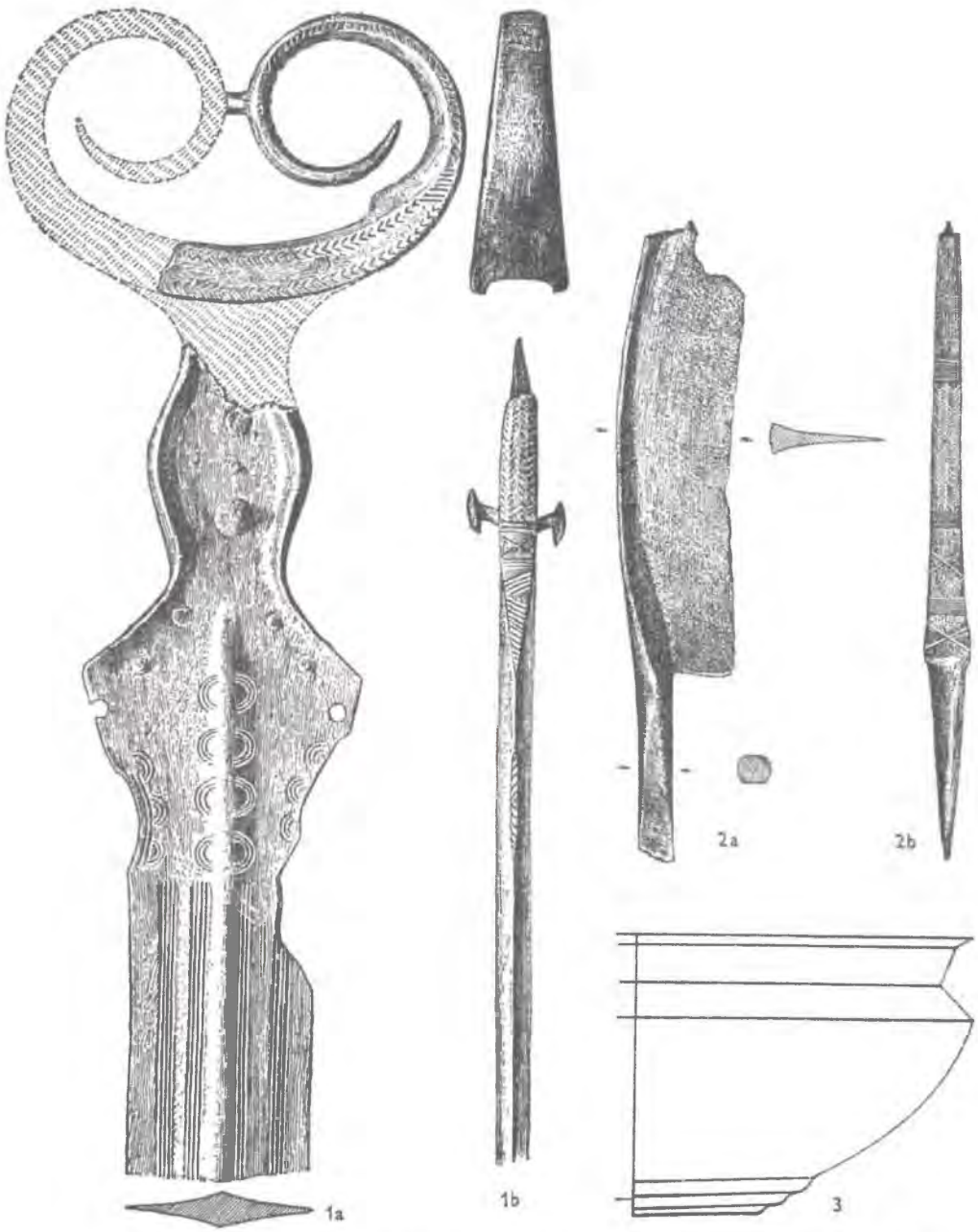


FIG. 237. **1,** upper part of the "antennae" sword; **2,** knife; and **3,** reconstruction of a bronze cup of Jenišovice type from cremation grave No. 63 of the cemetery at Klentnice near Mikulov, southern Moravia.
Scale approx. 2/3. *After* Řihovsky, 1956a.

Urnfield IV (*ca.* 1000 B.C. to the beginning or the middle of the ninth century B.C.) was contemporary with the early Villanovan culture in Italy. Urnfield *IV* continued many features common to Urnfield *III*, but is distinguishable particularly by the changed forms of bronze beaten vessels and swords. The most influential center of metallurgy was, as earlier, in the Carpathian basin. From northern Hungary and Slovakia come impressive hoards, like Hajdúböszörmény (fig. 116) which includes many diagnostic bronzes which typify the phase: swords with dish-like pommels (fig. 116, *1-3*), bronze cups decorated with embossing, large bosses and angular shoulders (fig. 116, *4*), buckets decorated with sun symbols

flanked by twin water birds (fig. 116, *5*), and cauldrons with "T"-shaped attachments (fig. 116, *8*). This phase is also known as Jenišovice, a name derived from another huge hoard in Bohemia which contained a number of cups (pl. 23, *5*, *6*), gigantic flat-bow fibulae (fig. 112, *5*), double spiral or spectacle fibulae (pl. 23, *3*), knives with sinuously curved blades and riveted handles (fig. 112, *2*), and other objects.

Urnfield V (from the early or mid-ninth to the mid-eighth centuries B.C.) is parallel to Villanovan Italy of the Tarquinia *I* – Bologna *I* period. This is the last and the most sophisticated phase of the Late Urnfield period. Diagnostic bronze artifacts are illustrated in figures 117, 242, and 243.

Swords became truly formidable weapons. Not infrequently they were 1 m or more long. Their decoration was extravagant; in addition to extremely rich decoration of pommels and hilts, blades below the hand guards were embellished with stylized water bird heads, rows of semicircles, circles or dots, and the rest of the blade down to the tip had groups of three to five parallel lines. Pommels were not only made in traditional disc and dish form, but a new series of swords had antennae or spherical pommels. An antennae sword 105 cm long, reproduced in figure 237 and plate 71, was found in a very rich cremation grave at Klentnice near Mikulov in Moravia (northeast of Vienna) together with a knife, a razor, a plain bronze cup, bronze rings, and 13 pots. The longest swords, with their pretentious spiraled pommels, may have been made especially for chieftains.

More variety and richness of decoration is also noticeable on other weapons and tools, i.e., spearheads, knives, razors, socketed celts. Fibulae retained large spiral catch-plates. The basic types were: the spectacle (fig. 117; *8*), the posamenterie (fig. 117; *9*), and the harp (fig. 117; *10*) types. Bronze cups now had high raised handles decorated with rows of small bosses. Phalerae, the probable umbos of shields, were likewise decorated with small bosses in concentric circles or raised ridges.

That these enumerated bronze artifacts were spread all over central Europe between France and Rumania, between southern Scandinavia, Italy and Yugoslavia indicates very active trade and intertribal relations between these areas. In a broad sense, Late Urnfield bronzes form one stylistic unity, although the many variants of the basic types which have appeared indicate that they were not necessarily produced in one metallurgical center. The metallurgists of the southern Carpathian center can, however, be regarded as the most skilled and most productive. From northeastern Hungary and eastern Slovakia emanated the greatest number of forms, which were then imitated in the north Alpine region, Germany, and Poland, and transformed into local variants.

Pottery tells a different story. Individual pottery styles alone distinguish each Urnfield group. Southwestern Germany and western Switzerland in the upper Rhine region, related to eastern France, had its own ceramic style. Another group north of the Alps in Austria and Bavaria produced pottery intimately related to pottery of Pre-Villanovan and Villanovan Italy. Western Germany, Belgium, and The Netherlands formed still another Urnfield area related to the upper Rhine urnfields. The three largest *eastern* Urnfield groups are briefly described below:

i. *The Middle Danubian Group*

The Middle Danube group in lower Austria, southern Moravia, western Slovakia, western Hungary, and western Yugoslavia, a continuation of the early Urnfield culture, has a different name in each country: in Moravia it is "Podoli", in Slovakia, "Chotín", in Hungary, "Vál", and in Austria, "Stillfried"; all names derived from the better excavated cemeteries of each region. All these labels pertain to one culture. Furthermore, the extension of the same culture is indicated by a series of hill-fort sites, pile dwellings, and graves in Slovenia, Croatia, Slavonia, and Bosnia. Of note are the following: the cemetery at Ptuj on the Drava (Starè, 1950); the pile-dwelling site on the Sava at Donja Dolina with its early horizon starting in the late Urnfield period (Truhelka, 1904); the hilltop sites of Čungar near Cazin and Ripač near Bihač on the border between Croatia and Bosnia (Radimsky, 1896, 1897); and Debelo Brdo at Sarajevo (Fiala, 1897). The Yugoslav archaeologists have every right to call this culture Illyrian because of its persistence into the Illyrian Hallstatt and up to the early historic period.

The basic information on this group comes from cemeteries, in some of which more than 100 cremation graves were excavated. Originally some of the cemeteries were quite large, comprising nearly 1000 graves, like the cemetery of Chotín in western Slovakia (Dušek, 1956). Other outstanding cemeteries are: Klentnice near Mikulov in southern Moravia (Říhovský, 1957), Mužla, district of Štúrovo in western Slovakia (Novotná, 1956), Vál in western Hungary (Patek, 1955), Wien-Gross Enzerdorf (Hetzer-Willvonseder, 1952), and Neszmély, west of the Danube in Hungary (excavated in 1959 by Dr. Patek, finds in the Nemzeti Museum of Budapest).

Cremation was universal. Burned bones are found in large biconical urns or in vases with a rounded belly and a cylindrical neck; in other instances cremated bones were piled or scattered in the grave pit. The barrows are seldom preserved, but stone rings and a systematic arrangement of graves in a line indicate that there was a visible outside marker above the grave.

Numerous amphorae, bowls, jugs, cups, and dishes were found. The most typical are footed amphorae with cylindrical necks and two small handles, undecorated (pl. 69, *11*) or decorated with horizontal, vertical, or diagonal flutings over the belly (pl. 69, 10). Some prettier vases were decorated around the foot with a star motif (Novotńa, 1956, fig. 3, *1*). Some vases have a decoration of incised horizontal lines above a row of dots and also of incised herringbones or zigzags (pl. 69, *6*, *9*). Bowls and dishes had either no handles, small handles, or high raised handles; dishes had fluted rims (pl. 72, *1*). Vases with horizontal line decoration and dots below (pl. 69, *9*) have close parallels in the Previllanovan cemetery of Fontanella, southwestern Venezia (Müller-Karpe, 1959, Taf. 86). In addition to the usual ceramic forms there were double pots (pl. 70, *2*) and beautiful zoomorphic vases (pl. 70, *1*).

The graves of commoners were rather poorly equipped, usually only with pots, several vases, and dishes, but in some graves unburnt bronze objects (a late type of vase-headed pin, reproduced in plate 69, *1* and *1a*, a bracelet, a ring) or blue glass beads were found. As in the early Urnfield period, chieftains' and warriors' graves are distinctly richer. One such grave is that of Klentnice in Moravia (Říhovský, 1957) already mentioned.

The northern part of the Middle Danube culture was disturbed by the incursion of the Lusatians somewhere at the juncture of the early and late Urnfield periods. Lusatian sites are found from this point on in western Slovakia down to Nitra. The warlike conditions between two tribes seem to have started in the twelfth century B.C. (during the Velatice phase) when heavily fortified hill-forts were built along the border of the Middle Danube and Lusatian groups. Hill-forts with impressive earthen ramparts are concentrated along the Tribeč mountains north of Nitra, with the highest in Zobor, 587 m above sea level (Paulík, 1962, p. 69).

ii. *The Lusatian Group*

The Lusatian group continued to exist in eastern Germany, western Poland, and northern Czechoslovakia and extended eastward into eastern Poland, and south into Moravia, Bohemia, and Slovakia. The greater part of Pomerania between the lower Oder and lower Vistula was now strongly influenced by the Lusatians, as was nearly all of present Poland. The Lusatians expanded at the expense of the Middle Danubian and Baltic cultures.

Traditional Urnfield burial rites continued, and cremation became universal. The ossuary was covered with an inverted dish and frequently put into another bigger pot along with accessory vases. In the better-preserved and well-excavated Lusatian cemeteries, low barrows were found above the graves; some less than 1 m, some reaching up to 1.5 m, but usually of the same height as the pile of stone which covered the grave in the middle of the barrow. The barrow was encircled by a ring of stones built in several rows; on top of the barrow stood a tall pointed tombstone. Such classical Lusatian barrows have been discovered in Saxony (fig. 212; pl. 61). In other cemeteries, cairns were found above the graves, but the low earthen barrows must have disappeared over the intervening eras.

The "boss and fluted style" of the preceding period continued in pottery, but a certain stylistic

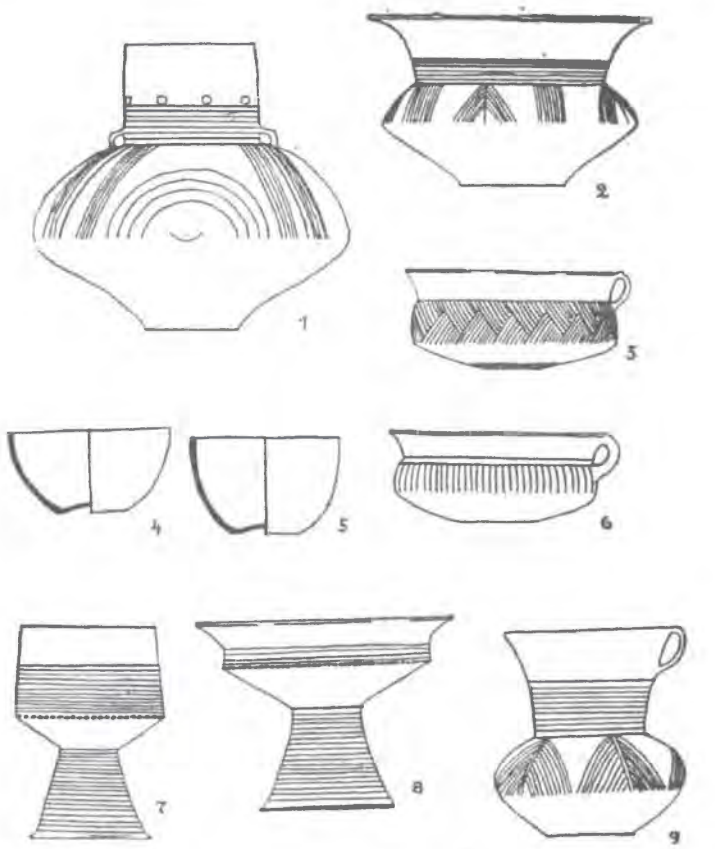


FIG. 238 A. Late Lusatian pottery. Schweinert cemetery near Falkenberg, Saxony, barrow No 11. Scale *ca.* 1/6. *After* Agde, 1936.

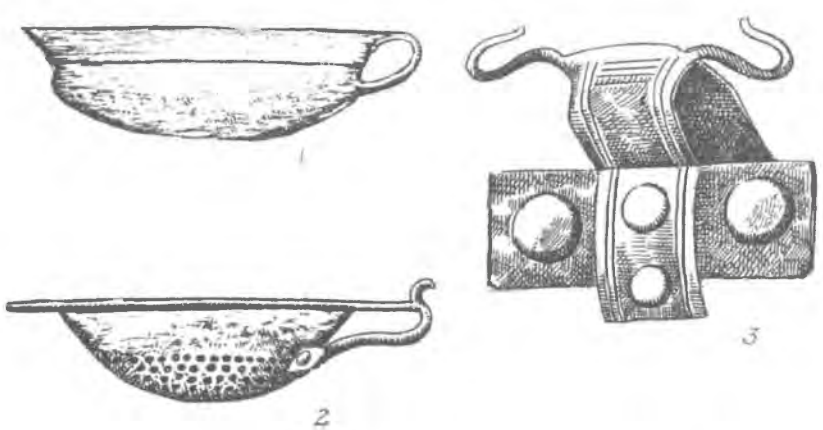


FIG. 238 *B*. Bronze cup (**1**) and sieve (**2**) from the Lusatian cemetery at Schweinert near Falkenberg, Saxony. **3**, handle of the sieve (**2**) decorated with bull's horns. From the same grave as fig. 238 *A*. Scale of **1** and **2** approx. 1/3. *After* Agde, 1936.

degeneration had marred its freshness and elegance. Amphorae, terrines with cylindrical necks, and jugs continued to be made, and the shapes during this period became less angular. The fluting was either oblique or grouped in concentric semicircles that were imitations of boss decoration. Bosses survived



FIG. 239. Late Lusatian pottery. **1, 5,** bird-shaped lamps; **2, 3,** rattles; **4,** vessel in the form of a human foot; **6, 7,** pots with engraved animals (horses?) and human figures. **1, 4, 7** from the cemeteries of Wilhelmshöhe near Usz, Poznan district; **2, 3,** from Laski near Kępno; **5,** from Oblekovice, district of Znojmo, Bohemia; **6,** from Wilanowiec near Chodziez. Scale: **1-6,** approx. 1/4; **7,** approx. 1/2. *After* Tummely and Kossinna, 1913 **(1, 4, 7)**; Ćwirko-Godycki and Wrzosek, 1938 **(2, 3)**; Říhovsky, 1958 **(5)**; and Pęcherska, 1936 **(6)**.

only as small nipples in the center of concentric arcs (fig. 238A, *1*; pl. 73, *top, right*). Along with oblique and circular motifs there were parallel, horizontal, diagonal, and vertical lines (fig. 238A, *1, 2, 6-9*) which sometimes formed bands of upright and inverted triangles (fig. 238 A, *3*). The pots were usually reddish in color and polished. Pedestaled bowls (fig. 238A, *7, 8*; pl. 74, *3*), vessels in the form of a human foot (fig. 239, *4*; pl. 75, *1*), theriomorphic vases for lamps (fig. 239, *1*; pl. 75, *3, 4*), several-storied vessels, double or triple vases (pl. 74, *2*), jugs with very high necks (fig. 74, *4*), drinking horns (pl. 73, *bottom*), and rattles (fig. 239, *2, 3*) occurred, yielding a much larger variety of ceramic forms than during the bossed pottery period.

On the bottoms of vases occurred incisings of crosses, wheels, crosses with vertical and horizontal striations between the cross arms, concentric circles, and other variations on presumed sun symbols. The insides of the dishes were incised with an elaborate ornament, usually composed of concentric circles in the middle and vertical or diagonal lines radiating in all directions. Stylized plants, fir-tree motifs, animals (horses? – fig. 239, *7*), and human figures (fig. 239, *6*) were incised on some terrines and jugs. Crosses and radiating sun motifs are also found on perforated stone axes and stone pendants. They indicate that these symbols were not confined to pottery, but were used any place they were deemed necessary.

Pottery was found associated with long pins having small vase-shaped, globular, conical, spiral, or ribbed heads (fig. 240, *6-12*); fibulae with a flat bow and large spiral plates at the ends; bracelets and neck-rings, round, semicircular or elliptical in cross-section, and twisted, plain, or decorated with clusters of striations; small annular, conical, and cylindrical amber beads (pl. 75, *2*); plain leaf-shaped spearheads; bronze arrowheads (fig. 240, *2-4*); chisels and socketed celts (fig. 225, *C, D*); button and tanged sickles; single-edged razors with ring-handles (fig. 240, *1*); and double-edged razors with an almost circular blade (fig. 240, *5*). Beaten bronze vessels, parts for cult wagons, giant fibulae, richly

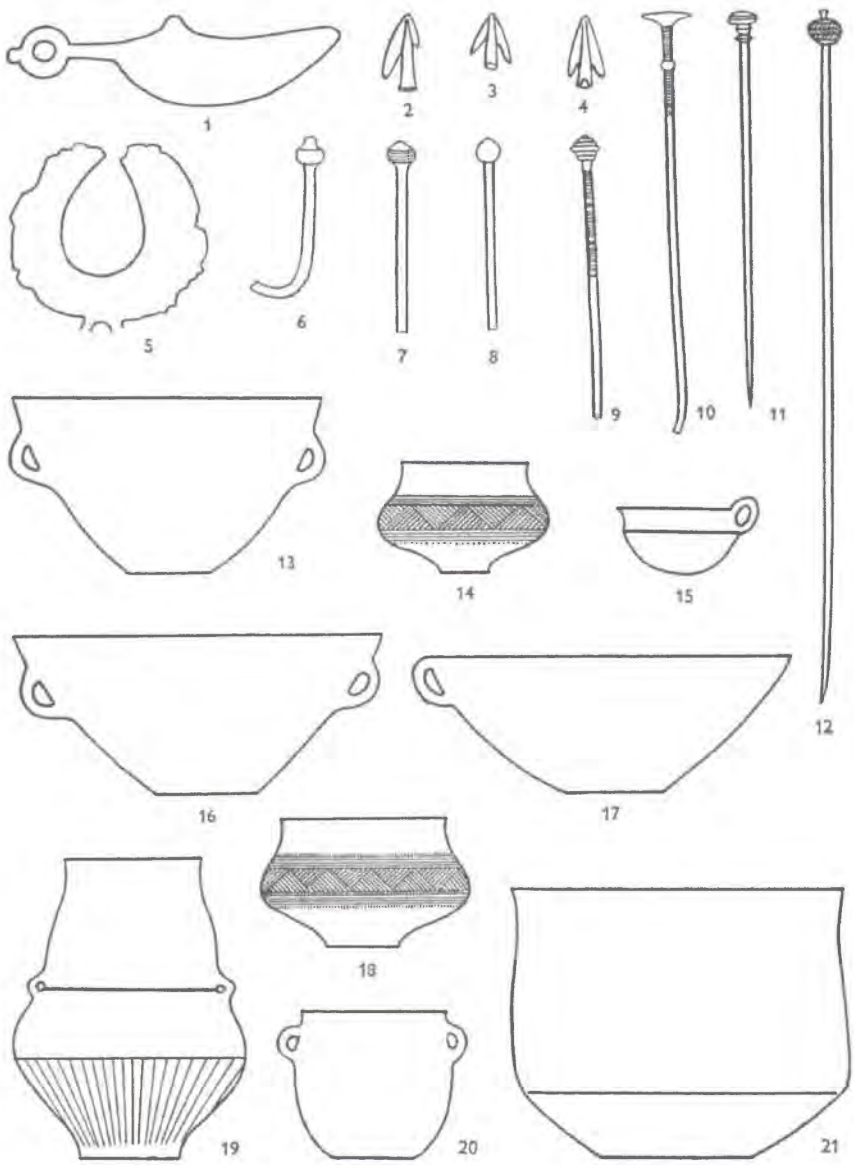


FIG. 240. Late Lusatian bronzes and pottery from the cemetery of Brno-Královo Pole, Moravia. **1,** razor with a ring-handle; **2-4,** bronze arrowheads; **5,** double-edged razor with a ring-handle; **6-12,** pins; **13-21,** bowls, cups, and vases. Scale: bronzes approx. 1/3; pots approx. 1/4. *After* Říhovsky, 1958.

ornamented knives, swords, phalerae, and other luxury items usually appear in hoards. They must have been brought by trade either from the central German-Bohemian or from the north Hungarian-east Slovakian metallurgical center.

iii. *The Tisza group*

The Tisza group is documented by impressive hoards found in the Tatra mountains and along the southern foothills of the Carpathians in eastern Slovakia, northeastern Hungary, and northwestern Rumania. In this area, only a few cemeteries and habitation sites have been excavated.

Mezöcsat, south of Miskolc in northeastern Hungary, is the only systematically excavated cemetery (excavated in 1958-1959 by Dr. Patek; materials in the Archaeological Institute of the Academy of

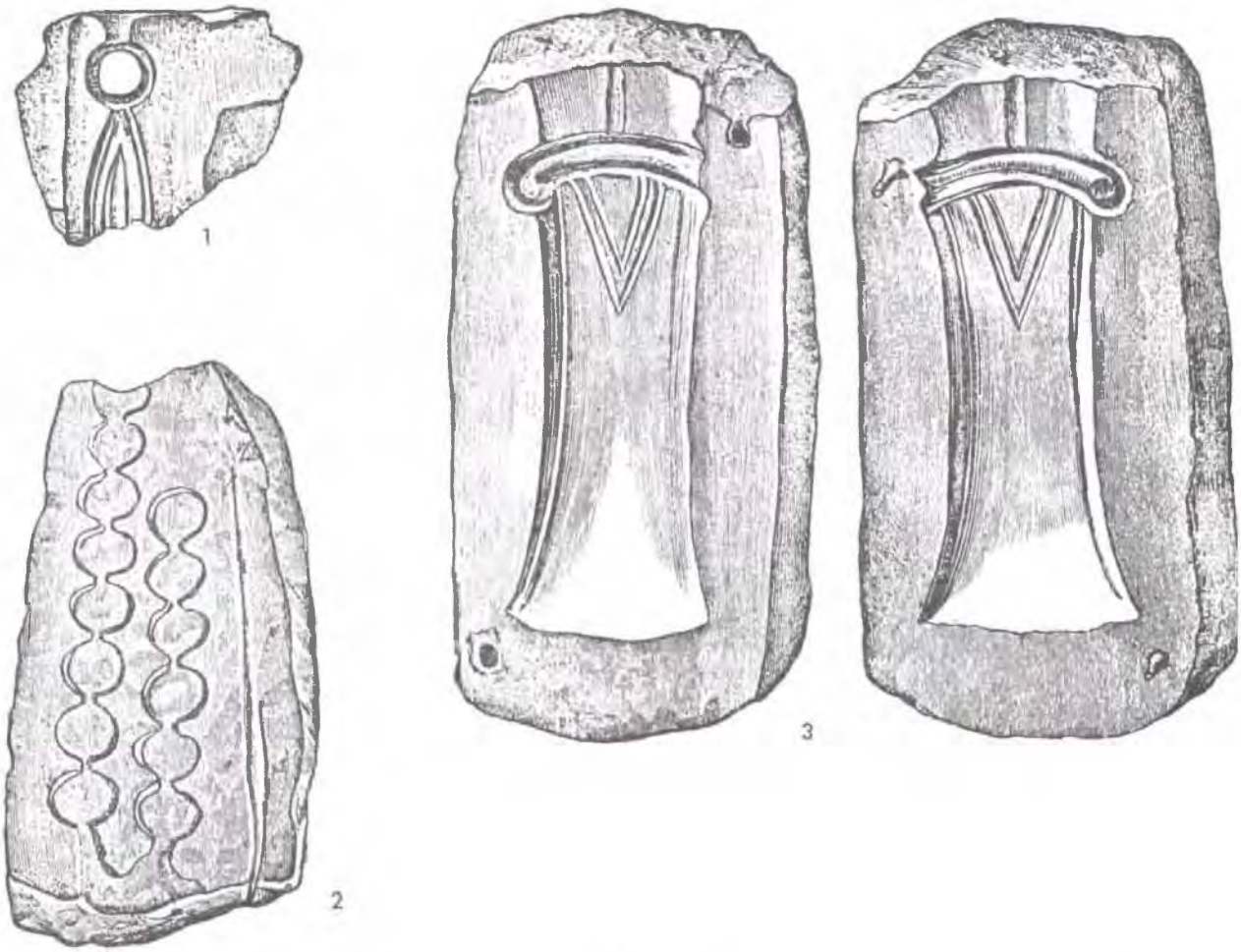


FIG. 241. Sandstone and clay molds for razors, ornamental plates, and socketed celts from eastern Hungary. **1,** fragment of a baked clay mold for razors with ring-handles. Habitation site Dolány, district of Nográd. Scale 2/3. **2,** one half of a sandstone mold for round ornamental plates. Habitation site at Szihalom, district of Borsod. Scale 1/2. **3,** bi-valved mold of baked clay for socketed celts from Tiszaföldvár near Szolnok. Scale 1/2. *After* Hampel, 1887.

Sciences, Budapest). A remarkable novelty of this cemetery is that burials took place in inhumation graves; the skeletons were extended and usually accompanied by cattle bones (offering remains). Although cremation graves were also used, we have no pure "urnfield" culture here. The excavator has informed me that the cemetery extended throughout "Hallstatt B and into Hallstatt C", which is the first half of the first millennium B.C. The latest graves include iron bracelets and iron beads. While there were very few bronzes in the graves, there were many pottery forms: knobbed vases (pl. 76, *10*, *12*), some with horizontal lines around the neck and vertical rib decoration (pl. 76, *7*, *8*), and some with V or inverted V incised ornaments below the knobs (pl. 76, *10*, *11*), and cups with one or two high handles (pl. 76, *1*, *3-6*), highly reminiscent of Troy VII B_2 pottery (some examples of which are illustrated in fig. 234). The similarity may be noticed in general forms, in handles and even in decorative motifs; thus the cemetery of Mezöcsat, at least its early phase, cannot be far removed from Troy VII B_2, and very probably started not later than in the eleventh century B.C. On the other hand, continuity of pottery forms with the preceding phase in the Tisza basin is evident. The so-called Gava or Mohi types (fig. 226) seem to be parent forms of Mezöcsat large vases. The double-handled cups bring to mind Late Monteoru cups which are of a very related form. The question of the introduction of inhumation rites must be connected with the eastern influences.

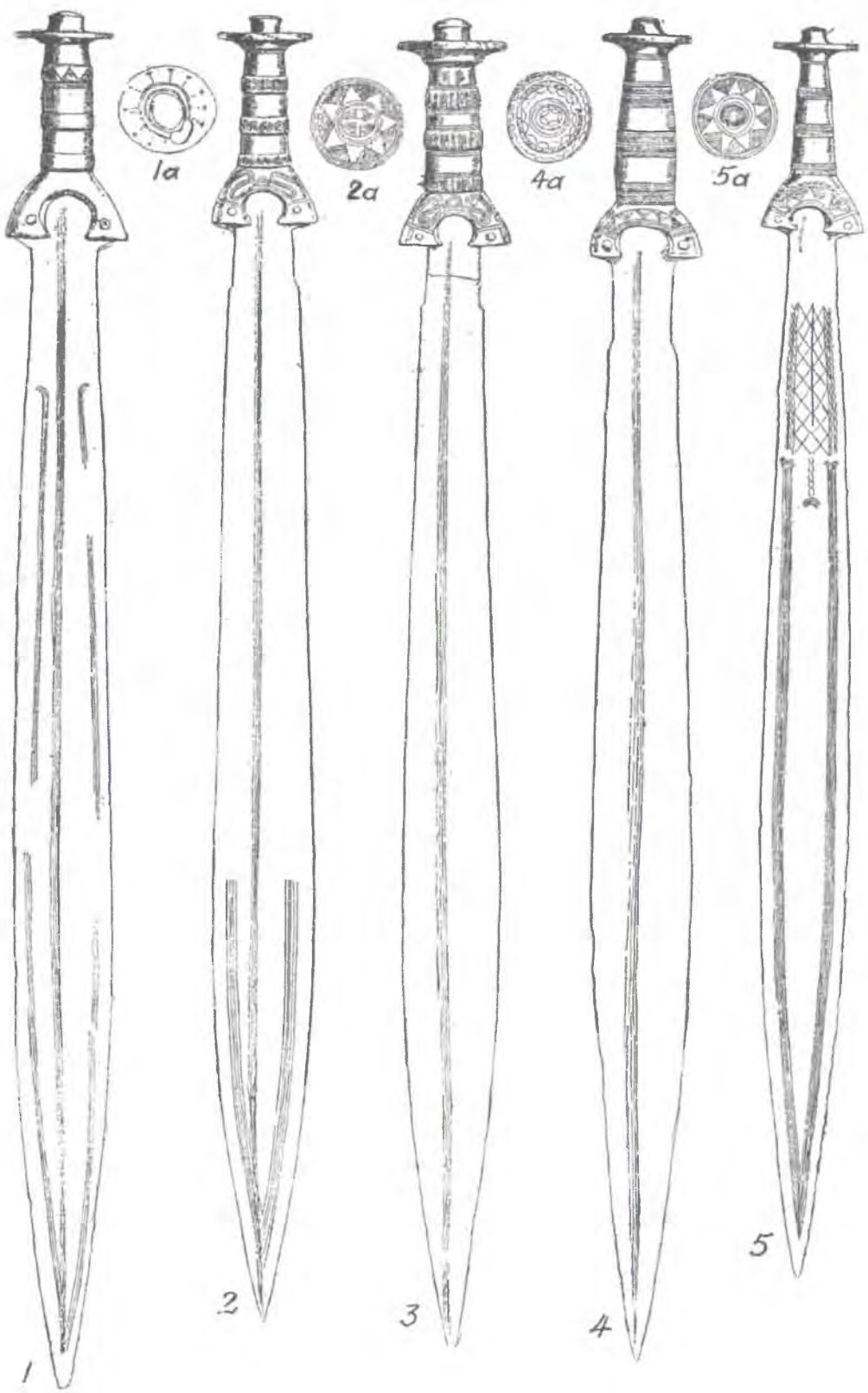


FIG. 242 *A*. Swords from the hoard of Zsujta, district of Abaúj, northeastern Hungary. Length: **1,** 68.7 cm.; **2,** 65 cm.; **3,** 65.5 cm.; **4,** 67.5 cm.; **5,** 62.6 cm. *After* Hampel, 1887.

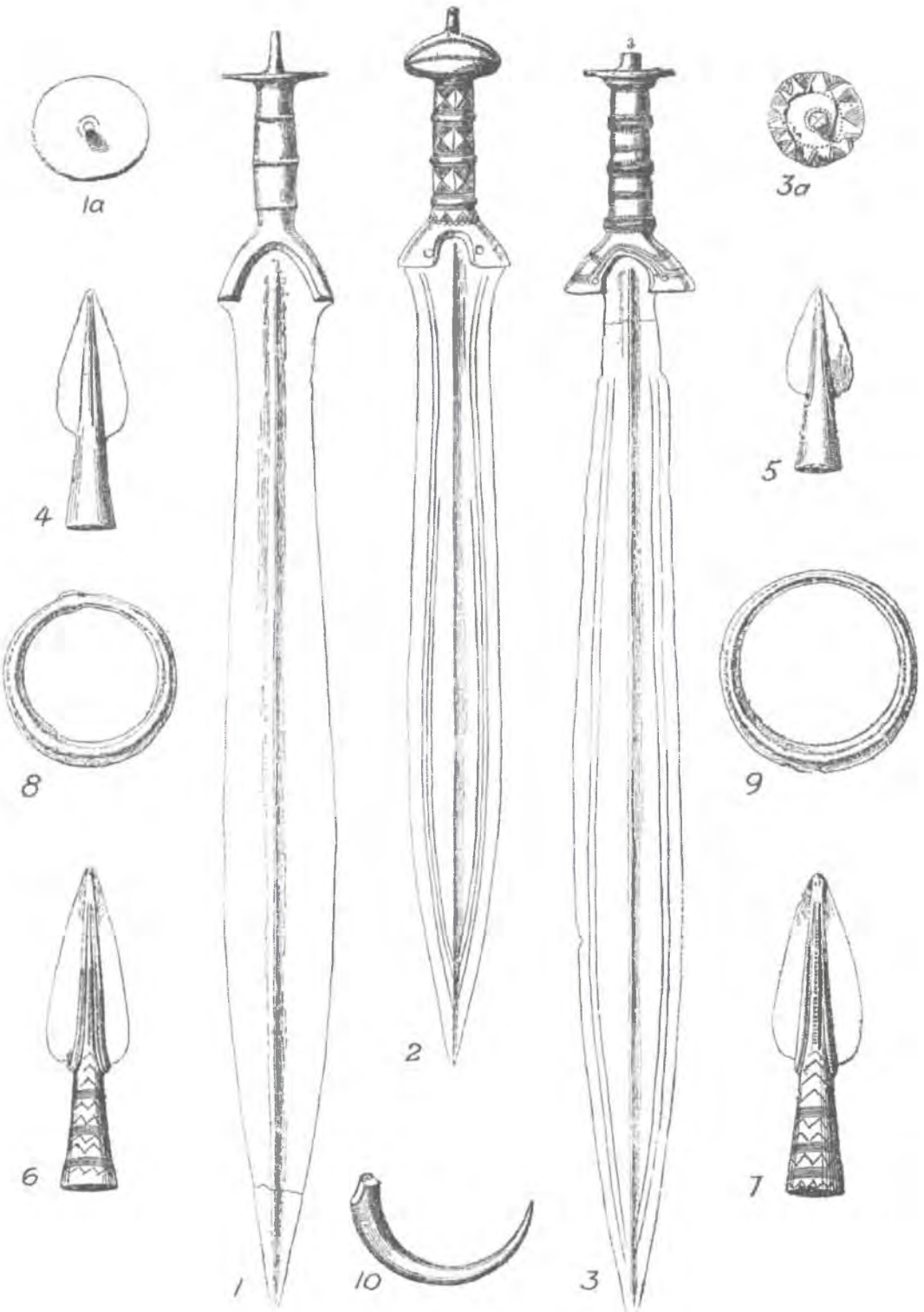


FIG. 242 *B.* **1-3,** swords; **4-7,** spearheads; and **8-10,** bracelets from the hoard of Zsujta, near Abaúj, northeastern Hungary. Length: **1,** 60.8 cm.; **2,** 50 cm.; **3,** 60 cm.; **4,** 11 cm.; **5,** 8.4 cm.; **6, 7,** 15 cm.; **8, 9,** 7.5 cm. in diameter. *After* Hampel, 1887.

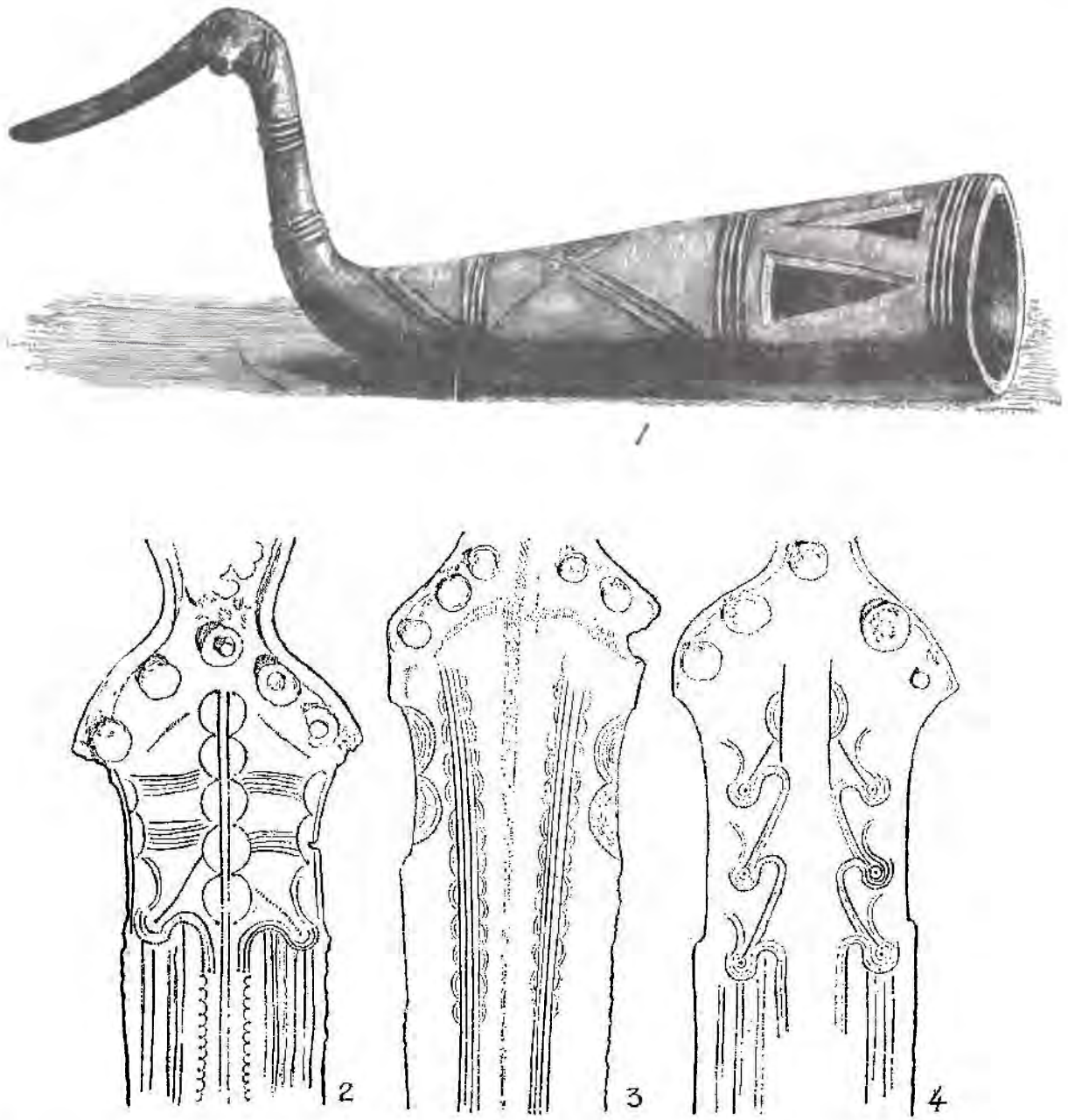


FIG. 242 *C.* **1**, Bird-shaped mounting used for a funeral wagon (?) from the hoard of Zsujta near Abaüj, northeastern Hungary; **2-4**, decorated sword blades from the hoard of Podgorjany near Beregovo in the Carpatho-Ukraine. Scale approx. 2/3. *After* Hampel, 1887.

The habitation site on the hill of Somotor near Královyj Chlmec in Slovakia yielded pottery of Mezöcsat type (pl. 77). The dishes had omphalos (pl. 77, *3*) or were beautifully decorated with a star motif and concentric lines (pl. 77, *2*). Large vases with widening necks had vertical rib decoration around the belly (pl. 77, *1*). In addition to pots, there were animal figurines; one such figurine, probably a ram, adorned with bands of pits and horizontal lines, is shown in plate 77, *4*. The same site yielded evidence of agriculture: grind stones, wheat, and rye grains. Bones of domesticated and wild animals and traces of metallurgy also appeared. From Somotor came a hoard with four cups of Jenisovice type, four



FIG. 243. Chief forms of bronzes found in the hoard Aranyos II, district of Borsod, Hungary. **1,** flange-hilted sword; **2,** bronze hilt from a sword; **3, 4,** end-axes; **5,** socketed celt with multiple V-decorations; **6,** socketed celt with a projecting socket; **7, 8,** tanged sickles with double dorsal rib; **9,** spearhead; **10,** spiral arm-ring made of twisted wire; **11,** fibula with spirals attached, "Posamenterie" type; **12,** spiral arm-ring with spiral ends; **13,** outstretched bracelets with geometric decoration. Scale approx. 1/3. *After* Holste, 1951.

socketed celts, and a pendant, placing the site in the beginning of the first millennium B.C. A sandstone mold (Andel, 1955, figs. 211 and 213) was discovered some 50 m from the hoard.

Judging from a number of hoards, and particularly from founder's hoards and sandstone molds (fig. 241), the most vigorous center of Late Bronze Age metallurgy lay in the upper Tisza basin and the southern foothills of the Carpathians in Slovakia. I have continually stressed its importance and have reproduced the most impressive hoards like Hajdúböszörmény (fig. 116), which is typical of Urnfield *IV*; and Zsujta (figs. 242, *A*, *B*, *C*, *1*), Podgorjany (fig. 242C, *2-4*) and Aranyos *II* (fig. 243) which are typical of Urnfield *V*. The large task remains for the Hungarian and Czech scholars to analyze the bronzes and determine their copper source, and to publish the as yet unpublished hundreds of bronze hoards.

With this I shall end my description of the greatest Bronze Age culture of Europe. At the transition from the Bronze to the Iron Age this powerful culture did not perish. It continued, but the Early Iron Age brought events which moulded this culture into a different shape. The material culture of central Europe from the end of the eighth century B.C. and onward was strongly influenced by Greeks and

Etruscans and, in eastern central Europe, by the Proto-Scythians who brought the oriental elements.

The western Urnfield people, who in the eighth century B.C. occupied almost all of southern France and parts of Spain and established trade with the Greeks via the Mediterranean Sea, became the largest and strongest Urnfield unit and created the fabulous Celtic Hallstatt and La Tène culture. The eastern Urnfield groups met a different fate: at the end of the eighth century B.C., the Tisza and the large part of the Middle Danube groups were overrun by hordes of steppe horsemen, the Timber-grave people. The heirs of the Middle Danube Urnfield group persisted in the eastern Alpine and the north and east Adriatic area where the Illyrian Hallstatt culture arose in the following centuries best known through its celebrated Hallstatt cemetery and the situla art. In the north, the Lusatian people lived peacefully until the fifth century B.C. when their lands were devastated by Scythian raids, followed in the fourth century B.C. by the Baltic Pot-covered Urn expansion from the lower Vistula area over Poland and in the third century B.C. by the Celtic La Tène expansion to eastern Europe. Soon thereafter the Germanic migrations started which changed completely the ethnic configurations of central Europe.

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VI

THE BALTIC CULTURE IN THE SOUTHEASTERN BALTIC AREA, EASTERN POLAND, NORTHERN VOLYNIA, BYELO-RUSSIA, AND WESTERN GREAT RUSSIA

The Baltic culture was spread over the greater part of present-day Poland (eastern Pomerania, the Warsaw region, and eastern Poland), East Prussia (the western part of which is now Poland, the eastern, U.S.S.R.), Lithuania, and southern Latvia (fig. 244). The same cultural elements extended into the northern Ukraine, Byelo-Russia, and western Great Russia, but the scanty metal artifacts from the Early and Middle Bronze Age in these eastern regions are insufficient as yet for reconstructing the whole course of Bronze Age developments there.

The name "Baltic" is a geographical and ethnic designation. This culture occupied a long strip of land along the Baltic Sea from the lower Oder in the west to the lower Daugava. The very clear continuity of culture in East Prussia, Lithuania, southern Latvia, Byelo-Russia, and western Great Russia, shows that the direct ancestors of the people speaking the Baltic branch of the Indo-European language may have occupied this area. The distribution of Bronze and Iron Age cultures in these areas coincides with the distribution of Baltic river names (Gimbutas, 1963b).

This whole area belongs to the forest zone with a varied vegetation consisting, during the Sub-boreal period, mainly of leafbearing trees. The forest fauna included aurochs, bison, wild horses, elks, bears, wolves in addition to other smaller forest animals. The Oder and Vistula rivers connect the southeastern Baltic area with central Europe, serving as the main avenues of communication. The Nemunas (Memel) basin was a gate leading to Lithuania, and East Prussia and southwestern Lithuania were not as densely forested as the adjacent territories to the east and southeast. The most fertile lands were in the southern Polish-Volynian loess belt, the maritime section of the lower Vistula basin, the Samland Peninsula, and the basin of the Nemunas, where layers of alluvium are found. Masurja in northern Poland, eastern Lithuania, and eastern Latvia were surrounded by a moraine belt with many lakes and a sandy soil. Further east were the uplands intersected by the valleys of the upper Dnieper and its tributaries and by the tributaries of the upper Oka. To the south these uplands are girdled by the swampy area of the Pripet River basin.

The area where amber is found along the east Prussian and Lithuanian coast was an outpost for influences from central and southern Europe. The concentration of finds along the coast and the trade routes and the scarcity of finds in peripheral zones demonstrate how great a role natural resources and trade play in cultural progress. This area did not possess any metal resources of its own and its development into a metal-using culture was entirely based on copper imported from central Europe.

Changes in the metal artifacts and other innovations went very much hand in hand with those in central Europe, and therefore the dates for each chronological phase are mainly correlations based on imports from central Europe, from the Únětice-Tumulus-Urnfield culture.

The description will be divided into the following groups:

1. *The formative or the Baltic Corded period,* from *ca.* 2000 to *ca.* 1700/1600 B.C. This includes early and late Corded phases, parallel to central European Corded Pottery and early Únětice. Culture was in the Chalcolithic stage, but the number of copper artifacts increased at the end of this period.

2. *The Baltic Early Bronze Age* equaling classical and late Únětice, *ca.* 1700/1600 to *ca.* 1450 B.C. Because of the very intensive amber trade with the Ünéticians, imports of metal artifacts increased markedly.

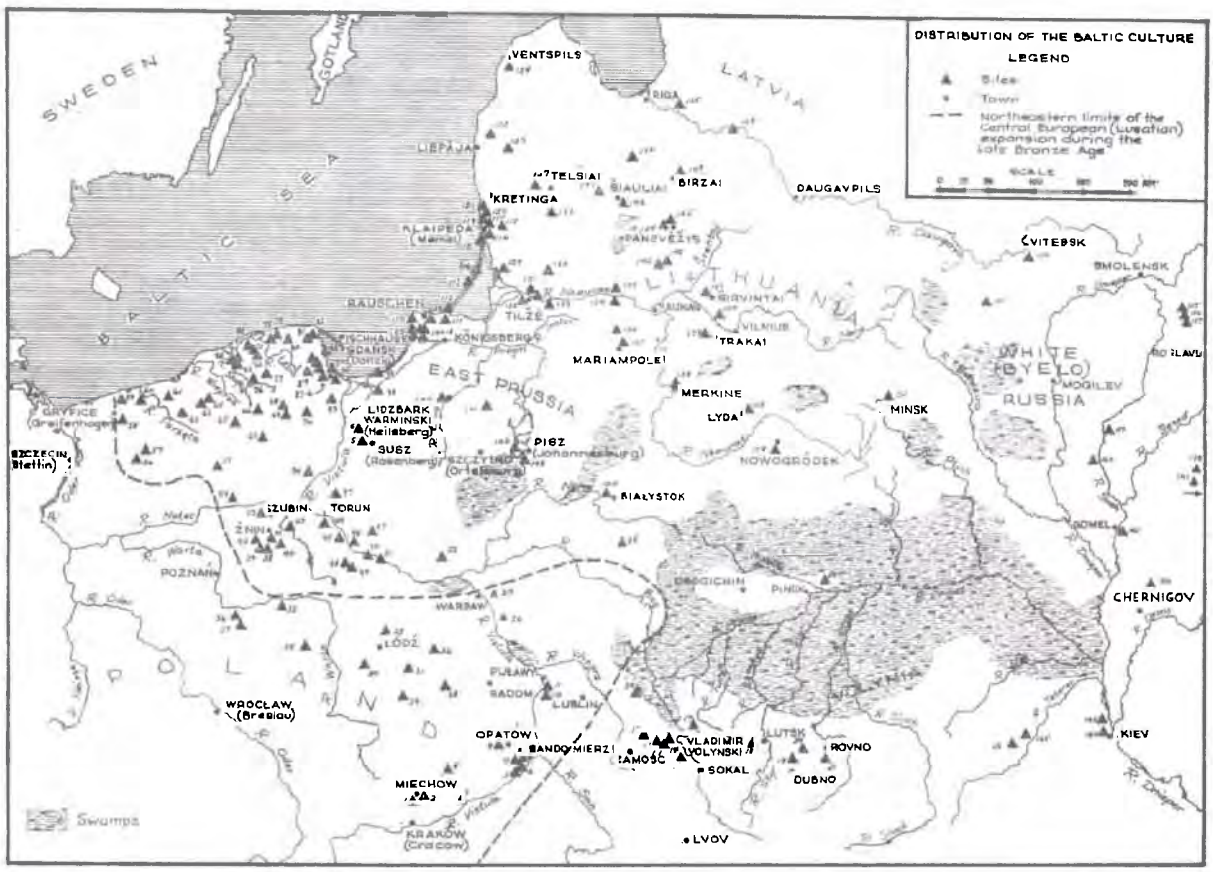


FIG. 244. Distribution of the Baltic culture in the southeastern Baltic area. Sites mentioned in the text are indicated.

Key to Fig. 244:

1. Miechow cemetery, Early Bronze Age (after classification of central European Bronze Age)
2. Gorzyce cemetery, Early Bronze Age
3. Wójcza hoard, Late Bronze Age
4. Rosiejow cemetery, Chalcolithic (Late Corded) and Middle Bronze Age (Trzciniec)
5. Tarnobrzeg cemetery, Early Bronze Age
6. Łojowice cemetery, Early Bronze Age
7. Mierzanowice cemetery, Chalcolithic (Corded) and Early Bronze Age
8. Złota habitation site, Chalcolithic (Corded) and Early Bronze Age
9. Opatów habitation site, Middle Bronze Age
10. Trzciniec cemetery and habitation site, Middle Bronze Age
11. Dratów hoard, late Middle Bronze Age
12. Skomorochy Male cemetery, Early Bronze Age
13. Strzyzów habitation site, Early Bronze Age
14. Grodek habitation site, Middle Bronze Age
15. Topornica cemetery, Late Bronze Age
16. Ulvivok (Ulwówek) cemetery, Late Bronze Age
17. Koło cemetery, Classical
18. Torchin cemetery, Early Bronze Age
19. Kostjanets habitation site, Middle Bronze Age
20. Lipa cemetery, Early Bronze Age
21. Stublo hoard and Zdolbitsa cemetery and habitation site, Early Bronze Age
22. Narodichi habitation site, Middle Bronze Age
23. Słochy Anopolskie habitation site, Middle Bronze Age
24. Wolka Okopska, habitation site, Middle Bronze Age
25. Minczewo habitation site, Middle Bronze Age
26. Osieck habitation site near Garwolin, Middle Bronze Age
27. Makowiec Duzy habitation site, Middle Bronze Age
28. Myśliborz habitation site, Middle Bronze Age
29. Sulechów cemetery, Early Bronze Age
30. Lutomiersk habitation site, Middle Bronze Age
31. Łubna cemetery, Middle Bronze Age
32. Rawa Mazowiecka hoard, Middle Bronze Age
33. Sierpów near Łęczyca habitation site, Middle Bronze Age
34. Kurza habitation site near Kalisz, Middle Bronze Age
35. Łuszczewo near Konin, habitation site, Classical
36. Pogorzelica cemetery, Classical II
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3. *The Middle Bronze Age or the Trzciniec period ca.* 1450 to *ca.* 1250 B.C. The culture was greatly influenced by the expanding central European culture during the first expansion period, typified by the Koszider bronzes, and during the post-expansion period. The western part of the Baltic culture in central Poland and Pomerania came under the influence of the central European peoples, but the indigenous culture continued as is shown by the hundreds of habitation sites and graves of the Trzciniec type. The name "Trzciniec" was previously applied only in central and eastern Poland and northern Volynia, but I shall use it for the whole culture from the Baltic Sea to central Russia, as there is no reason to define the same entity with several names.

4. *The Classical Baltic,* from *ca.* 1250 B.C. to *ca.* 1100 B.C., parallel to early Urnfield in central Europe. This phase can also be labeled *the Rantau period* from the stratified tumulus cemetery in Rantau, Samland, and is synchronous with the second great expansion of the central European people. Central Poland and the lower Oder Basin were now occupied by the central European Lusatians, while the rest of the Baltic culture in eastern Pomerania, East Prussia, and Lithuania, although influenced by the Lusatians, retained individual features. Many typically Baltic bronzes appeared.

5. *The Late Bronze Age Baltic culture* from eastern Pomerania to southern Latvia, which continued the Classical period and kept its individual character, from *ca.* 1100 B.C. to the eighth century B.C.

6. *The Late Bronze Age in the land of the eastern Balts,* which includes the recently discovered sites of Studenok and Bondarikha type in southern central Russia and the northern corner of the Ukraine.

1. *The Baltic Corded period. Beginning of the second millennium B.C. to ca. 1700/1600 B.C.*

The Baltic culture is definitely of Kurgan origin and its beginnings must be traced back to the appearance of Kurgan elements in the area where we find the Baltic culture during the Bronze Age.

Very early Kurgan finds such as those found west of the Black Sea and in Transylvania, which should date from around 2300-2200 B.C., have not as yet been reported from the Baltic area. The early Corded horizon is about synchronous with the Bell Beaker culture in central Europe, the Hut-grave period of the Kurgan culture in south Russia, and the Middle Kuban or the hammerheaded pin period in the northern Caucasus. With the intrusion of the Kurgan people into the Baltic area via the northwestern Ukraine

and southern Poland the picture of the whole northern European culture began to change very rapidly. The immigrants had to cope with the local Funnel Beaker people; and cultural developments during one or several centuries after the great Kurgan expansion in the southern Baltic area, Poland, and Volynia show a process of hybridization of two cultures, the Funnel Beaker and the Kurgan. The Kurgan elements dominated and the Funnel Beaker culture gradually disappeared. The Globular Amphora complex, spread between the upper Elbe and East Prussia and between the Baltic Sea on the north and northern Volynia and Moldavia on the southwest, shows the merging process of the two cultures. The question of what the Globular culture actually was will probably continue to be discussed for a long time. To some scholars it will always be "Funnel Beaker", on the basis of some forms and stamped decoration of pottery, and to others "Kurgan", judging from burial rites, the appearance of typical corded and herringbone motifs on pottery in addition to Funnel Beaker motifs, the appearance of the house-grave idea and of "megaron"-type houses. In post-Globular times the character of the culture became more or less stabilized and uniform. The Kurgan people gained ground. The Funnel Beaker people were assimilated.

In the north these Kurgan or Corded people reached southwestern Finland. In the eastern Baltic area they competed with the hunters and fishers of the Comb-marked Pottery culture, but survived there only during the first half of the second millennium B.C. In the Vistula basin and along the Pomeranian, East Prussian, and Lithuanian coasts they established numerous settlements or cemeteries and they are known as Złota in southern Poland, Rzucewo in the southaestern Baltic coast area, and the northern Volynian



FIG. 245. A schematic section of the village of Rzucewo on the Bay of Gdańsk (Danzig), arranged on reinforced terraces of a dune. *After* Żurek, 1954.

Corded Pottery groups. The cultures between the upper Vistula and Volynia in the south and the eastern Baltic coasts show surprisingly great similarity to each other. Some local variations cannot be denied, but this area is one cultural entity and not three or four "cultures", the local groups representing only slight geographical or chronological variants. The Złota group on the upper Vistula inherited some elements from the Baden culture as well as from the Funnel Beaker; the Volynian (Gorodsk) group shows influences from the Tripolyan substratum. The name "Haffküstenkultur", Baltic Haff culture, used by Germans for Rzucewo (Kilian, 1955) is too narrow, for it covers only the Baltic coast sites which form a part of the culture.

The Rzucewo site is located on the western shore of the Bay of Gdańsk (Danzig), a village built on several terraces of a high dune. The terraces were reinforced with large stone slabs and horizontal and vertical timber posts. Houses stood in a step-like row as is shown in the schematic plan (fig. 245). Hundreds of postholes indicate a long period of occupation (the site was excavated by J. Kostrzewski, Jazdżewski, *et al.*: Kostrzewski, 1929, 1931; Żurek, 1954; Kilian, 1955). Of similar importance is the village of Succase (Suchacz), east of the mouth of the Vistula on the southern shore of Frisches Haff (Zalew Wislany, Bay of the Vistula), which also yielded several occupation horizons represented by several layers of rectangular houses (fig. 246).

The complex of Rzucewo cultural features, the economy, the type of village, the architecture, the stone and bone tool equipment, and the forms and decoration of pottery, continued throughout the Early and even Middle Bronze Age. Although not all features were conserved, there are many forms or elements of continuity in the process of gradual change. The basic elements were typically Kurgan.

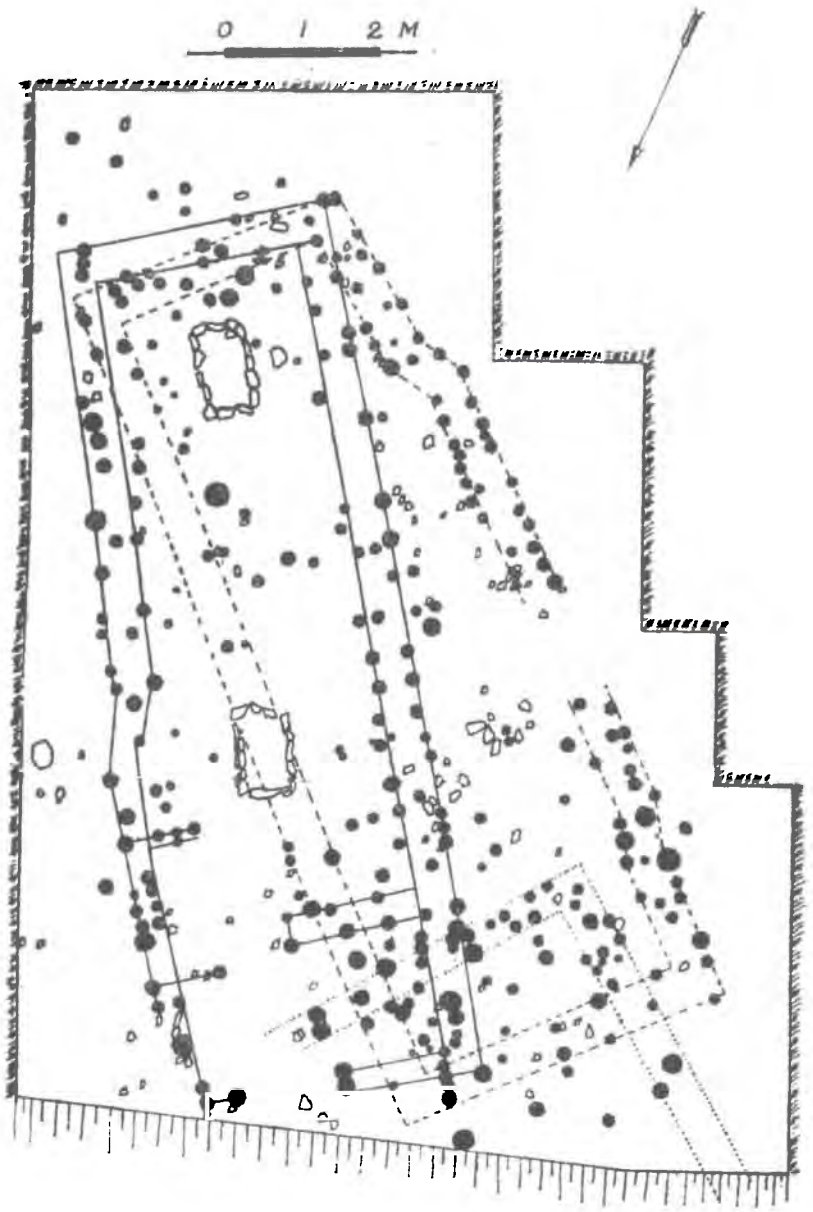


FIG. 246. Contours of three houses superimposed one above the other from the village of Succase (Suchacz), in the district of Elbing (Elbląg) on the coast of Frisches Haff. *Based* on Ehrlich, 1936, reproduced from Kilian, 1955.

In the economy animal domestication predominated, and several species of cattle, goats, sheep, pigs, dogs, and horses were kept. Hoe farming was practised, but agriculture was rather secondary in comparison with animal husbandry, hunting, and fishing. No direct evidence of crop cultivation was found in the village of Rzucewo, but some evidence was found in Succase. Intensive hunting, fishing, and textile, flint, stone, bone, and amber industries are evidenced. Villages were always of the hilltop type and lay near riverbanks and on dunes. Houses frequently followed the "megaron" plan, with a porch increasing the total length to 10 or 12 m. Some had two hearths and probably housed two families, and there were other structures for farming purposes. The flint industry retained a Mesolithic-Neolithic character: flint knives, scrapers, burins, borers, geometric inserts for harpoons or sickles, and rhomboid or triangular arrowheads were abundantly used. Stone celts were one of the main tools used for forest

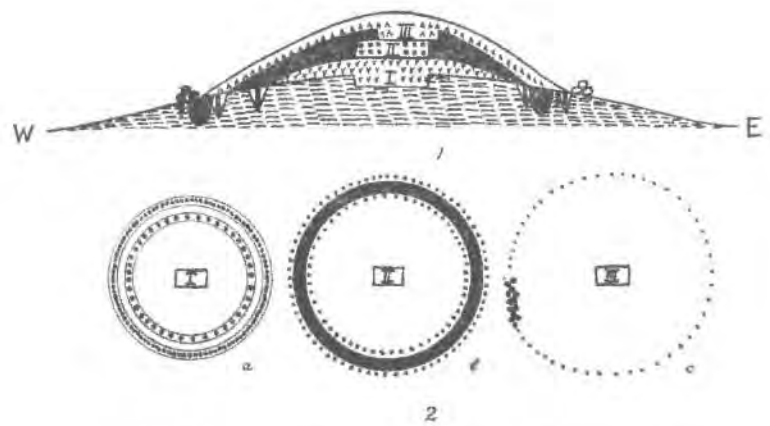


FIG. 247. The schematic stratigraphy of the barrow in Kaup near the village of Viskiautai (Wiskiauten) at Cranz, district of Samland. **1,** cross-section of the barrow showing three tumuli one above the other; **2,** plans of tumuli I-III. Tumulus I was encircled by two rows of timber stakes. Tumulus II – by two rows of timber stakes and a ditch in between. Tumulus III was girded by a ring of stones. Scale: **1,** approx. 1/100; **2,** approx. 1/200. *Based* on reconstruction by Kleemann, 1933, reproduced from Kilian, 1955.

clearing and timber working, which evidently was inherited from the Funnel Beaker culture. The perforated axe or battle-axe, also called Fat'janovo and boat-axe, was apparently a ceremonial axe. Pottery was decorated predominantly with horizontally impressed cord and a line of incisions or dots below or with an incised herringbone motif (pl. 79, *1*, *3*). From these two, with the addition of some stamped motifs inherited from the Funnel Beakers, numerous variants of design were formed (the reader is referred to Żurek, 1954, and Kilian, 1955, for the full scale of decorative motifs). The Rzucewo pottery was quite richly ornamented although poorly fired. The beaker was the most frequent form of pot, but there were also amphorae, dishes, cups, and large pots (used for storage or other purposes in the kitchen), plain or decorated with one or several pinched ridges around the neck and with several pairs of holes on the sides (pl. 79, *2*). Gradually the cord impressions were replaced by horizontal line incisions or horizontal grooves and ridges. The continuous development of the style in this area is traceable at least throughout the Early and Middle Bronze Age and in the eastern zone even throughout the Late Bronze Age.

The dead, uncremated and in a contracted position, were buried in stone cists or on stone pavements which may have been surviving parts of houselike structures. Rectangular cists were built of irregularly formed slabs, with no signs of special preparation. Graves were covered by low tumuli surrounded by several circles of timber posts. A classical example of the tumulus type and of continuity in burial rites has been found in a stratified barrow in the Kaup forest at the village of Viskiautai (Wiskiauten) near Fischhausen in Samland, excavated in 1873 (Heydeck 1893; mentioned in detail in the author's *Prehistory of Eastern Europe*, pp. 159 ff.). The two earliest tumuli were fenced in by timber posts and the third had a stone ring (fig. 247). The skeleton of tumulus I was furnished with a bone girdle clasp (fig. 248, I) which places the grave in the Bell Beaker horizon. The grave of tumulus II also contained a skeleton in a contracted position lying on a stone pavement. In this grave were found a rhomboid perforated stone axe, a bone pin, or needle, and a flint knife (fig. 248, II). Tumulus II very probably corresponds with the early Únětice period in central Europe or the beginning of the classical Únětice. On this was superimposed the third tumulus, with a grave, partly destroyed but apparently containing a skeleton in the contracted position equipped with a bronze necklet and another unidentified bronze artifact (fig. 248, III). Tumulus III should be parallel to classical or late Unetice, because the same type of necklets appear in abundance in the hoards of the lower Vistula and in East Prussia in this period. The last

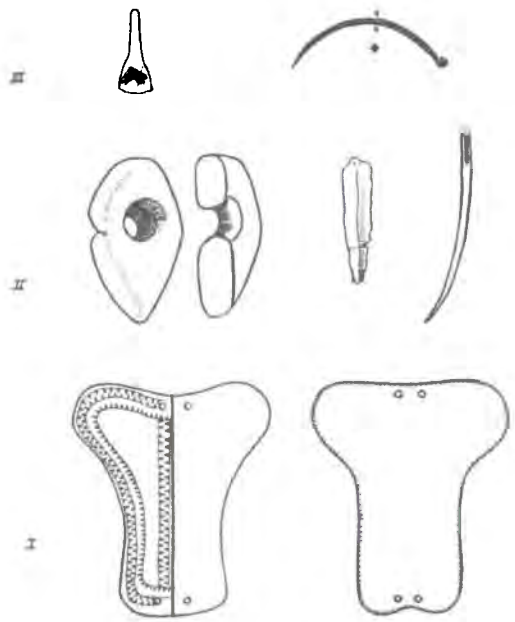


FIG. 248. Finds from three successive graves in the barrow of Kaup. *I:* ornamented bone girdle clasp, the second on the right is from Nida settlement, Kursių Uzmaris, Lithuania; *II:* a perforated stone axe, a flint knife and a pin or a bone needle; *III:* bronze chisel (?) and a broken necklet. Scale *ca.*: *I* 1/3; *II, III* 1/6. *After* Heydeck, 1893.

burial in the barrow was a Late Bronze Age urn-grave with an urn standing between flat stones in the upper part and at the side of tumulus III, as a secondary burial.

To the horizon of tumulus II can be assigned the grave with contracted skeleton from Waldersee, district of Pisz in southern East Prussia. The grave equipment consisted of a beaker with three pinched ridges around the neck (fig. 249, *1*), a perforated rhomboid stone axe (fig. 249, *5*), a flint knife (fig. 249,

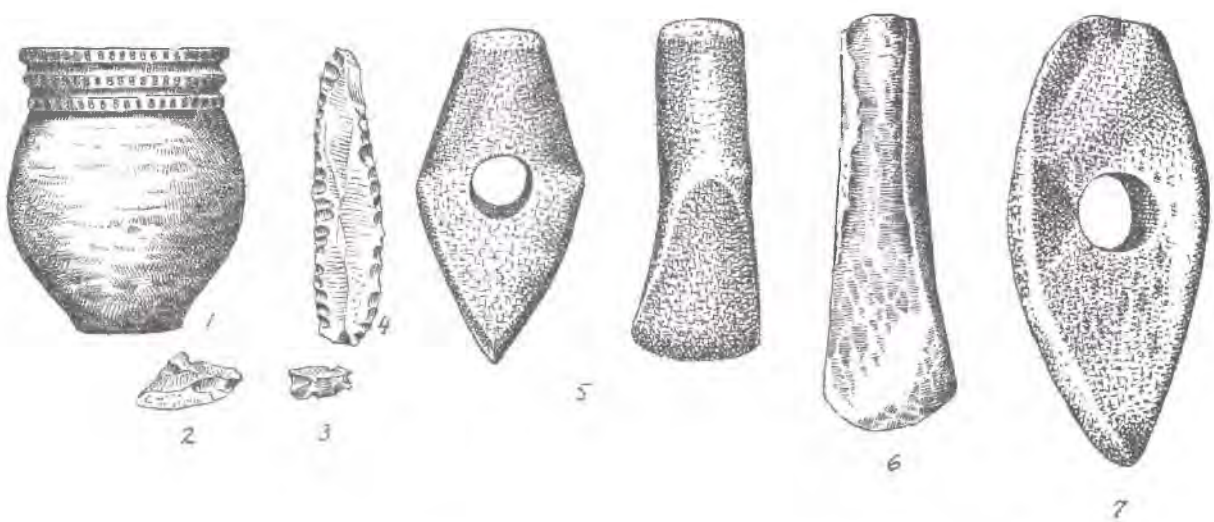


FIG. 249. **1,** beaker; **2, 3,** two fragments of flint artifacts; **4,** flint knife and **5,** stone axe from a grave at Waldersee near Pisz (Johannisburg), northern Poland (former East Prussia). Scale: **1,** 24.8 cm. high; **2-5,** approx. 1/3. *After* Bezzenberger, 1919. **6,** copper flanged axe and **7,** stone axe from the barrow at Kielpino near Gdansk (Danzig). Scale approx. 1/2. *After* Šturms, 1936a.

4), and two small flint artifacts (fig. 249, *2*, *3*). At the end of the Chalcolithic ridged decoration became a dominant type and in part replaced corded motifs. In the stratified site of Akali in Estonia, ridged pottery was proved to succeed early corded and late comb-marked pottery (pl. 80).

The chronological position of some stone-cist graves in barrows has been indicated by copper artifacts of an early Únětice type and by a profusion of objects like amber or bone rings with a small perforation for suspension. To the period parallel to early Únětice probably belongs a copper flanged axe and a rhomboid stone axe found in a destroyed tumulus at Kiełpino near Gdańsk/Danzig (fig. 249, *6*, *7*). A stone-cist grave at Konopat Polski near Świecie in the lower Vistula area yielded a dolichocephalic skull of an adult man and a large plain pot or urn filled with ashes among which were two copper finger-rings (Šturms, 1936a, p. 87). A small copper knife was found in a grave at Rybitwy (Ribittwen), district of Pisz, in association with a bone pendant (fig. 6, *2*). In Iwno near Szubin in northwestern Poland an amber pendant of the same form was found in a grave together with a flint knife and a pot decorated with horizontal rows and a zigzag band of cord impressions (fig. 6, *3*, *right*); and in the grave of the cemetery at Khorostkiv in western Volynia an amber pendant was found in association with a corded cup. It has already been mentioned in the chapter on chronology and commercial relations that circular amber or bone pendants, which probably were solar amulets, had a wide distribution between the Baltic Sea and southern Russia (fig. 5). In central Europe they precede the classical Únětice period; west of the Black Sea they appear in the Usatovo and early Monteoru assemblages, in the North Pontic culture in the post-catacomb phase; and in southern Russia we find them in the earliest classical Timber-grave phase.

The upper Vistula area was under the influence of the western Carpathian metallurgical center during the early Únětice period. The group of cemeteries around Sandomierz and Opatów, called 'Tomaszów' in Polish literature, yielded a great number of faïence beads and copper artifacts that have parallels in western Slovakia.

Developments throughout the whole Baltic Corded period are best illustrated by the stratified cemetery at Mierzanowice in southern Poland which shows a continuity from the Złota group of the early Corded to the period parallel to early Únětice (Salewicz, 1937). Between the Złota phase and early Únětice, there was another transitional or later Corded phase. The Mierzanowice cemetery revealed four superimposed strata. One of the richest graves, No. 9, containing faïence beads and copper earrings, was dug into a stone-cist grave, grave No. 1, furnished with a corded pot of the Złota type. Three other graves, contemporary with grave No. 9, were dug into Neolithic subterranean dwellings. The dead, accompanied by beads and copper ornaments, were in a slightly contracted position in a coffin of organic material (a tree trunk?); some were surrounded by stones. One grave, No. 83, differed in mode of burial and in equipment: the contracted skeleton lay in an irregular oval pit (fig. 250, I, *A*) furnished with a corded beaker (fig. 250, I, *3*), a flint celt (fig. 250, I, *5*), two copper spiral rings or hair-rings (fig. 250, I, *1*, *2*), and a large copper necklet imitating the necklets made of boar tusks (fig. 250, I, *4*). Thus, this cemetery demonstrates three successive chronological phases: I: "Złota", or early Corded; II: later Corded; and III: a phase parallel to early Únětice in central Europe. Stratum IV, the top grave, held only some flints, and unfortunately lacked the artifacts necessary for correlations.

The stratigraphy in the cemetery of Mierzanowice has shown that stone and bone industries continued without marked change into the Bronze Age. The cord impressions on vases persisted throughout a fairly long period, in three phases of Mierzanowice. The culture gradually became wealthier in metal, and it is possible that during Mierzanowice III people were practising metallurgy locally. In the cemetery area a hoard of copper ingots was found.

During the later Corded phase, which equates with Mierzanowice II, only a few fragments of metal artifacts were found in graves. Frequent finds in habitation sites are sherds tempered with sand, usually of a yellowish color, perforated stone axes, triangular flint arrowheads, flint celts, flint knives, scrapers and burins, bone awls, perforated boar tusks, clay whorls, etc. Most sherds are decorated



FIG. 250. *I: A*, grave plan and *B*, inventory from the second level of the Mierzanowice cemetery (Mierzanowice II). **1, 2,** copper earrings (or hair-rings); **3,** corded beaker; **4,** half of a copper necklet; **5,** flint celt. Scale: **1, 2, 4, 5,** 1/2; **3,** 1/4. *II:* **1,** flint sickles; **2-7,** pots from the third level of the Mierzanowice cemetery (Mierzanowice III). Scale: **1,** approx. 1/2; **2-7,** approx. 1/4. *After* Salewicz, 1937.

with horizontal cord impressions over rows of incisions; some sherds are plain. The decorated sherds belong to beakers, cups, and vases with handles. Saddle querns, rubber-stones, and grains which give witness of agriculture were also found. Bones of swine, goats, sheep, and horses prove the continuous importance of stock breeding.

The graves from Mierzanowice III yielded a great number of ornaments: bone pins (fig. 251, *8-10*); boar tusks with several perforations at the ends, to be worn as necklets (fig. 251, *12*); perforated animal tusks and teeth used for necklaces (fig. 251, *1, 4, 6, 7*); hundreds of faïence beads (fig. 251, *2*); shell (fig. 251, *3*) and bone (fig. 251, *5*); copper spirals; earrings (fig. 251, *15-18*); convex ornamental plates of copper (fig. 251, *13, 14*); and round bone buttons with several perforations at the middle and sides (fig. 251, *22, 23*). In some graves, several strings of disc-shaped or cylindrical bone beads, along with perforated boar teeth, were found in the vicinity of the waist, and were probably part of a belt. Three strings of beads were kept apart by spacer beads (fig. 251, *5*). The faïence beads are round, cylindrical, or segmented and of a cream, yellow, light green, or light blue color. In the cemetery of Tomaszów,

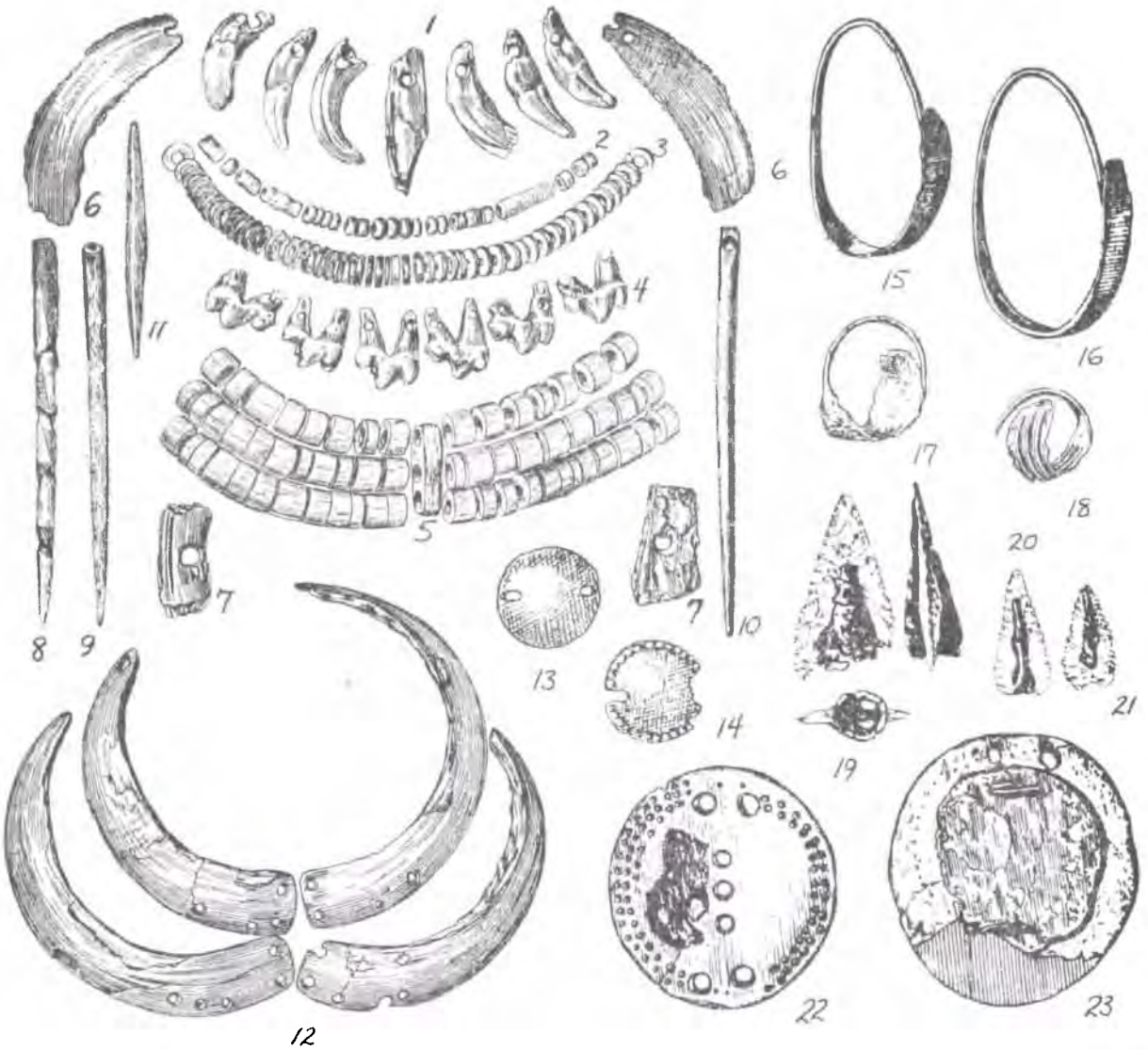


FIG. 251. Finds from the cemetery of Mierzanowice (Mierzanowice III), southern Poland. **1, 6, 7,** beads made of wild animal tusks; **2,** faience beads; **3,** shell beads; **4,** beads of animal teeth; **5,** spacer and three rows of cylindrical bone beads; **8-10,** bone pins; **11,** bone awl; **12,** necklets of boar tusks; all from one grave (No. 4), scale approx. 1/2. **13-23,** from other contemporary graves. **13, 14,** convex ornamental copper plates; **15-18,** copper earrings; **19-21,** flint arrowheads; **22-23,** bone buttons. Scale approx. 2/3. *After* Salewicz, 1937.

one faïence bead is heart-shaped. Beads of faïence and shell were used for necklaces and bracelets. Men's graves are distinguished by great numbers of heart-shaped and stemmed flint arrowheads (fig. 251, *19-21*). In some graves there were about 25 of them, placed near the hand of the dead person, probably inside a quiver at the time of burial. In the cemetery of Mierzanowice alone, over 300 well-made arrowheads appeared; large numbers of them also occur as isolated finds. Daggers were also made of flint. Other tools are copper chisels, flat axes, bone awls, flint celts, and large flint implements with sharp edges, presumably sickles (fig. 250, II, *1*). Pottery exhibits a blend of local and foreign elements. Some forms are like early Unetice types, such as small cups with handles (fig. 250, II, *6*), and S-profiled beakers with lugs (fig. 250, II, *5*). Others show a decoration of cord-impressions and incisions, a heritage from the preceding local Corded phase (fig. 250, II, *2, 3, 4*).

The cemetery of Mierzanowice was located on arable land close to the village of that name; no

traces of barrows were preserved. Some of the skeletons were laid on pavements of stones and were covered with stones, but the exact tomb structure is impossible to reconstruct. That the remains of organic material were found below and above the skeletons of the burials at Mierzanowice III, and that the position of the dead was not much contracted, may indicate that tree trunk coffins were used. In the other cemeteries of the same period graves took the form of stone-cists of slabs in combination with smaller stones. In stone-cist graves of the cemetery of Zlobnitsa, district of Rovno in northern Volynia, a basket-shaped copper earring (similar to those illustrated in fig. 304, *1*, *2*), a perforated stone axe (similar to that illustrated in fig. 249, *7*), a flint dagger, a flint knife, and a corded amphora were discovered (Sveshnikov, 1961). Graves were usually single, but double graves also occur. In the cemetery of Skomorochy Małe near Hrubieszów, a double grave contained a man, about 65 years of age, and a woman, about 25 years. The man occupied the main compartment of the tomb. In the vicinity of his head were organic remains, probably of funeral offerings. The woman was located above the man, facing the other way; her feet at the level of the man's pelvis, and her elbows above the man's feet (Ślusarski, 1956, p. 98).

2. *The Baltic Early Bronze Age, ca. 1700/1600 – ca. 1450/1400* B.C.

Amber trade with Greece via central Europe started chiefly during Late Helladic I. Spacer beads and flattened-spherical amber beads have been found in the Mycenaean shaft-graves III, IV, and VI, usually dated at 1550 B.C.-1510 B.C., and from Grave Omikron, in the second circle, dated before 1550 B.C. We have also spherical beads, spacer beads, and ring pendants with projections for suspension, from tholos tombs in Greece dated at 1500 B.C. – 1450 B.C. Spherical amber beads occur frequently around 1400 B.C. and later, in Mycenaean Greece. The same kind of beads appear in great numbers in the Únětice graves in Bohemia and Silesia, and it has been estimated that over 70 per cent of Únětician graves contain amber beads. In the East Prussian-Lithuanian coastal area, spherical amber beads are also numerous, and they were found in unfinished state in the workshop at Juodkrantė (Schwarzort) on the narrow bit of land between the Baltic Sea and the Courish Lagoon (pl. 5, A).

Development and intensification of the amber trade was the main factor in the rapid enrichment of the culture along the Baltic coast. During the end of the seventeenth and sixteenth centuries B.C. we can see a marked increase in bronze and gold finds along the Oder and lower Vistula and along the East Prussian coasts to the Nemunas. The metal age in the Baltic area began about 1600 B.C. or somewhat before. The beginning of the Baltic Bronze Age is approximately parallel to the beginning of the classical Únětice culture, but only during the later phase of the classical Únětice or the halberd period did bronzes appear in greater numbers.

During the classical Únětice period the lower Vistula area was under strong influence from the Únětician. In central Europe and in the lower Vistula area, spherical or axe-shaped amber beads appeared in association with loop-headed pins, short triangular dagger blades, arm-rings with narrow ends, basket-shaped hair-rings, flanged axes, perforated stone axes, and other objects. To this period belongs the cemetery of Śmiardow (Schmirtenau) near Złotów, west of the lower Vistula (Holter, 1932), in which flattened-spherical amber beads were found in an assemblage of loop-headed pins, flanged axes with low flanges, metal-hilted daggers, flint daggers of laurel-leaf shape, and small triangular arrowheads with a triangular concavity at the base. Large hoards found on the lower Vistula also indicate extensive trade in amber. In these hoards amber beads (figs. 16, *6*; 17, *4-16*) are associated with gold neck-rings (fig. 17, *17-19*), basket-shaped ear-rings (fig. 17, *1*), plus ornaments and weapons of the Únětice type: massive C-shaped arm-rings, spiral rings, spiral rolls of copper wire, long and narrow double-edged axes, dagger blades (fig. 24), and bronze-hilted daggers (fig. 16, *1*). Halberds were also unearthed in the south-eastern Baltic area; one at Gallen near Szczecinek (Neustettin), Pomerania, one at Meisterwalde

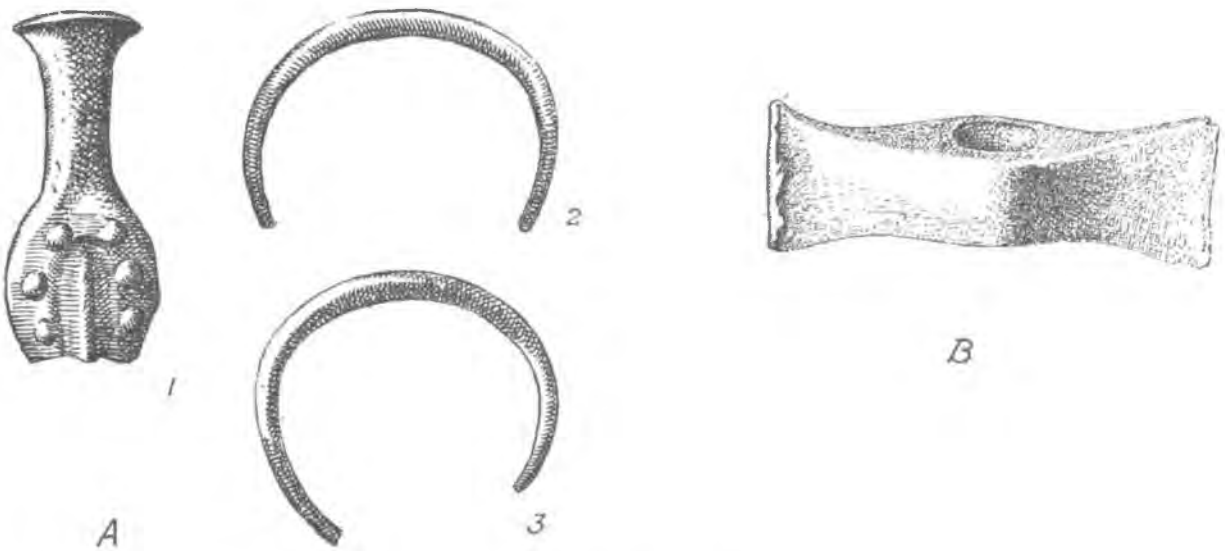


FIG. 252. *A*, **1**, the upper part of the sword of Apa type and **2, 3**, bracelets from a grave in the barrow at Prusewo (Prüssau), eastern Pomerania. Scale approx. 1/2. *After* Šturms, 1936a. *B*, an Aegean double axe from the peninsula of Samland. Isolated find. Scale approx. 1/4. *After* Engel, 1935.

near Gdańsk, and one at Veliuona in the district of Kaunas, Lithuania. They are like the metal-shafted type from the graves of the Łęki Małe barrow in western Poland, which belong to the advanced phase of classical Únětice (fig. 175, *12*).

Many bronze artifacts were imported from central Europe during the period which equals late Únětice. Among them are narrow, graceful flanged axes and pins with globular or button-shaped perforated heads. From this period a considerable number of necklets were found. A bronze-hilted short sword (fig. 252, A, *1*), related to the Apa sword of eastern central Europe, and two bracelets with tapered ends and a circular cross-section (fig. 252, A, *2*, *3*), from the barrow of Prusewo (Prüssau) in eastern Pomerania near the mouth of the Vistula must be classed with the late Únětice-classical Otomani (Füzesabony) period. East central European types in greater numbers appeared in the lower Oder area, as for example two swords of the Apa type from the hoard at Rosenfelde near Gryfino, and a narrow shaft-hole axe almost identical to that from the hoard of Apa with a vertical and ribbed shaft-tube from Klein Bünzow near Greifswald (Kersten, 1958, nos. 309, 607).

From the nature of the metal finds along the lower Vistula, we see that the southeastern Baltic area was important as the northern outpost of the transcontinental trade of Europe. Via the Únětice culture in western Poland and eastern Germany, it was connected on the one hand with Greece and Italy, and on the other hand with the British Isles. Furthermore, the amber land was involved in trade even with countries outside of Europe. The witnesses for this far-flung trade are the bronze statuette portraying the Hittite sky god Teshub found at the mouth of the Nemunas River at Šernai in Lithuania (pl. 16), and the spearhead with two loops discovered at Skowarcz near the mouth of the Vistula (fig. 65, *2*) which has very close analogies in the British Isles (fig. 65, *1*) and in China during the Yin dynasty (fig. 63, *1-3*). The amber route crossed central and eastern Russia to the middle Urals and further to Siberia. The Near East received amber either via Greece or via the Caucasus where, in several instances, we find amber beads dated to the fourteenth century B.C. The Hittite figurine very possibly came to Lithuania via Greece where the same type of statuettes appear. Commercial contacts with the Aegean area are also indicated by a double-axe having a round perforation hole, found in Samland (fig. 252 *B*).

Metal artifacts were rare in graves; usually there were only boat-axes or perforated stone axes of rhomboid form, flint knives, flint celts, amber beads or rings, and pottery (fig. 253). Flint daggers,



FIG. 253. **1,** finds from the tumulus I at Babiety (Klein Babentz) near Susz (Rosenberg), northern Poland (former East Prussia). *a*, pot; *b*, boat-axe; *c*, amber bead. **2,** finds from the habitation site at Konczewice (Kuntzendorf), former district of Gross Werder in East Prussia. *a*, *b*, pots; *c-g*, flint arrowheads; *h*, flint scraper (?); *i*, flint celt. Scale approx. 1/3. *Based* on La Baume and Langenheim, 1933 and 1938.

similar in form to daggers of the western Baltic area are known also from this culture (fig. 254, *2-4*), associated in graves with flanged axes of bronze (fig. 254, *1*). Pots were S-shaped beakers with outwardly turned rims, usually decorated with deep horizontal incisions forming ridges around the neck; plain, or with incisings or finger-tip impressions (fig. 253, *2*a, b). This type of pottery is a direct descendant of corded pottery. Flint artifacts retained an archaic character. In the habitation sites of eastern Lithuania small heart-shaped arrowheads together with microlithic triangular or rhomboid arrowheads and scrapers were found. The rhomboid "arrowheads" may really have been flint inserts for bone tools. Such flints appeared in association with perforated stone axes, hoes (round in cross-section), a dish and thick-walled sherds, all found in the remains of semisubterranean houses at Samantonys, district of Širvintai, and at Žalioji, district of Vilnius, eastern Lithuania (figs. 255, 256).

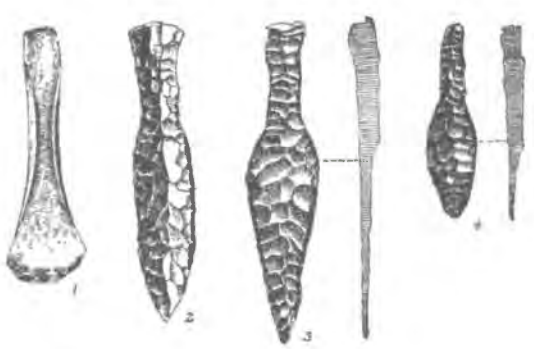


FIG. 254. **1,** flanged axe of copper; **2,** flint dagger, probable grave find, from Wierzyno (Versin), district of Miastko (Rummelsburg), eastern Pomerania. Dagger 17.8 cm. long, axe 14.8 cm. *After* Kersten, 1958. **3, 4,** flint daggers from Druskininkai, southern Lithuania. Scale approx. 1/5. *By courtesy of Historiska Museum in Stockholm.*

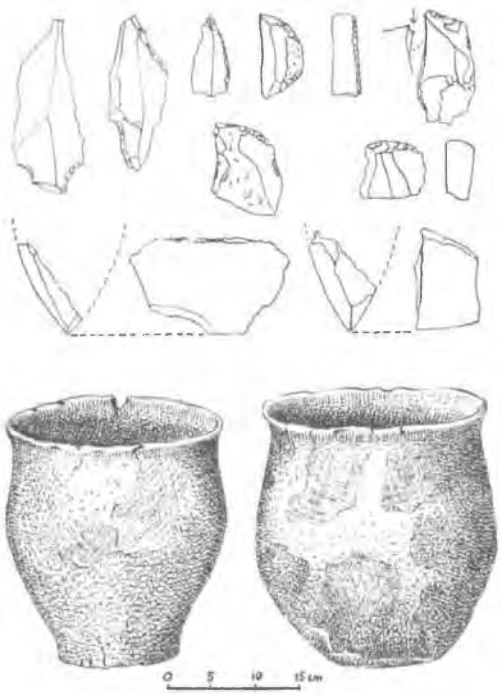


FIG. 255. Pots, flint and stone tools from the habitation site at Žalioji near Vilnius, Lithuania. *By courtesy of R. Rimantiene*, Istorinis Muziejus, Kaunas, Lithuania.

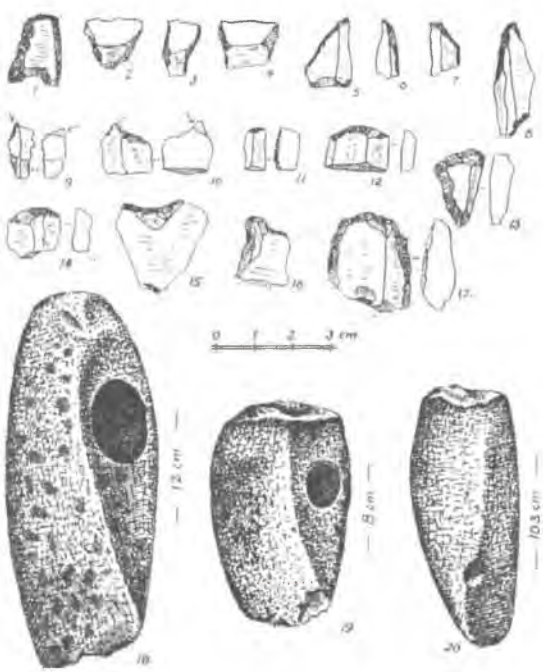


FIG. 256. Flint and stone artifacts from the burnt layer of a semi-subterranean house at Samantonys, district of Širvintai, eastern Lithuania. **1, 8,** flint arrowheads; **2-7, 11,** probable flint inserts for bone tools; **9, 10,** burins; **12-17,** flint scrapers; **18, 19,** stone axes; **20,** stone hoe. *Courtesy of R. Rimantiene*, the excavator, Istorinis Muziejus, Kaunas, Lithuania.

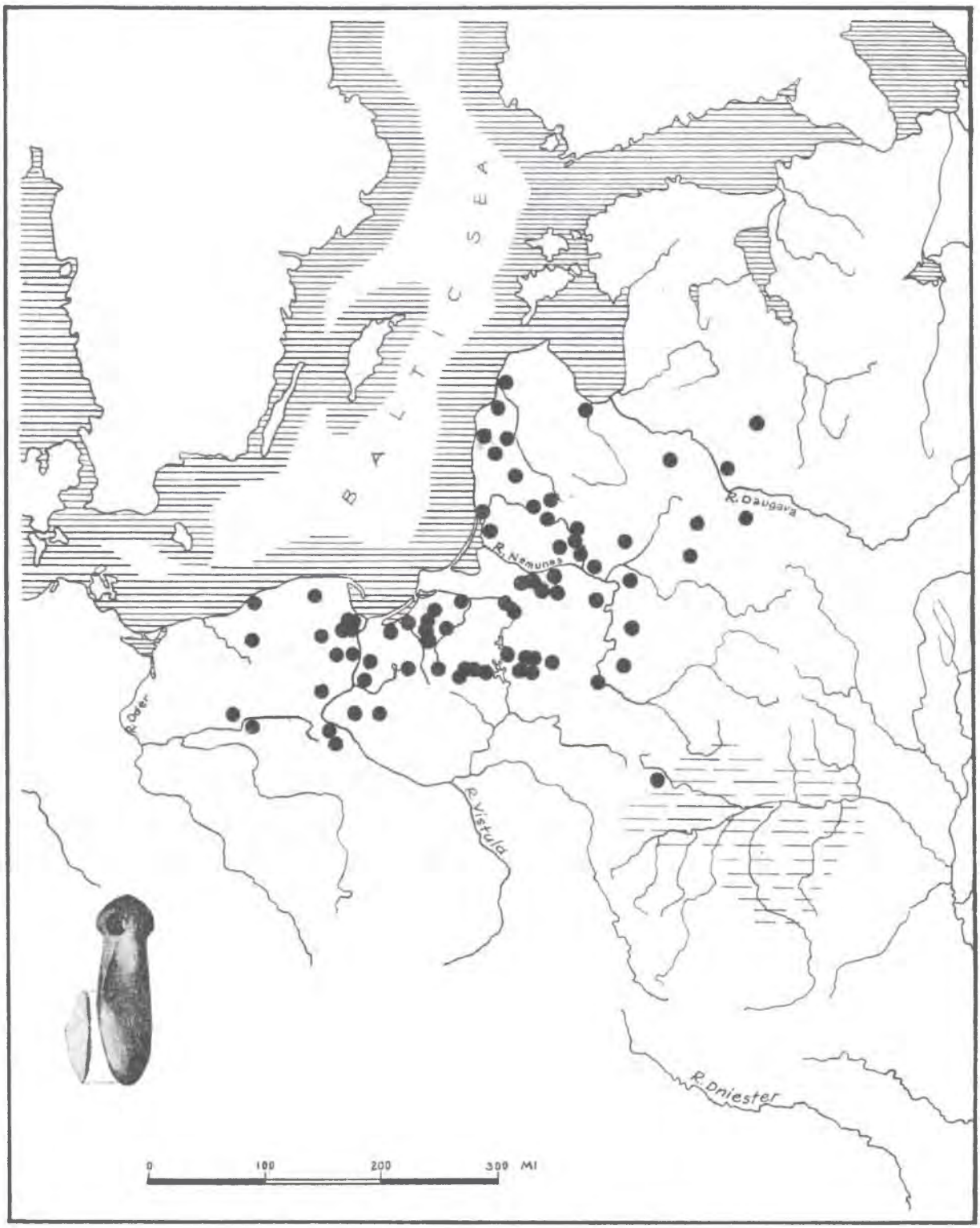


FIG. 257. Distribution of the Baltic snake-headed hoes.



FIG. 258. Early Bronze Age pottery of Iwno type from the cemeteries in northern Poland. **1**, Baranowo, district of Strzelno; **2**, Szarlej, district of Inowrocław; **3**, Drążno, district of Wyrzysk; **4-6**, Iwno, grave No. 8, district of Szubin. *After* Kostrzewski, 1935.

To the early Bronze Age may belong some stone hoes with a perforation on the butt-end. The heads around the perforation are rhomboid or triangular in shape. Hence their name "snake-headed hoes". They are also called "Lithuanian hoes" or "East Baltic hoes", and their distribution coincides with the distribution of other elements typical of the Baltic culture during the Bronze Age between the lower Oder area and the Daugava River (fig. 257). There are about 100 well-preserved hoes, but all of them are isolated finds. However, there are some hints that they may belong in the Early Bronze Age. Several fragments, believed to belong to snake-headed hoes, were discovered in the habitation sites of Lithuania (Radikiai and Puvočiai, district of Kaunas, excavated by Rimantienė; information from the excavator). Stone tools and heart-shaped flint arrowheads found in these sites are of the usual Early Bronze Age types.

In a series of graves on both sides of the lower Vistula, the upper Notec, and in the area of Warsaw, a uniform pottery type appeared in association with the late Únětician artifacts: pins with globular heads; pins with flat rhomboid heads (fig. 259, *3*) and bracelets made of round bronze or copper wire with tapered ends (fig. 259, *2*). These cemeteries of northern Poland are usually called the "Iwno culture" after the earliest excavated cemetery at Iwno, district of Szubin (Brunner, 1905). The thin-walled pots which they yielded are decorated either with horizontal ridges or with horizontal incised lines and zigzags (figs. 258), and in the mid-neck zone there is usually a bulb with clusters of incised lines radiating from it (fig. 258, *1-3*).

The Iwno group represents a later development of the Baltic Early Bronze Age, and is indubitably connected with the whole Baltic cultural zone. The pottery shows continuity with the pottery of earlier Early Bronze Age phases (cf. pots from the habitation site of Kończewice-Kuntzendorf: fig. 253, *2*, *a*, *b*). There are no factual grounds for regarding this pottery type as derived from Bell Beakers and for considering the Iwno group as a separate culture or as a branch of the Únětice culture (Kostrzewski,



FIG. 259. **1**, potsherd of Iwno type; **2**, bracelet and **3**, pin from the cemetery of Srebrnagora near Znin, northwestern Poland. Scale 1/3. *After* Knapowska-Mikolajczykowa, 1957.

1948, pp. 197-200). It is too remote in time from the Bell Beaker culture and the Iwno pottery is definitely not Únětician.

In 1952 at Lake Biskupin near Żnin, a unique discovery was made. An enclosure or "kraal" and a camp site were found on an elevation in the middle of the flat prairies (Rauhut, 1954; Rajewski, 1958). The enclosure was formed by a ditch about 1.80 m deep, 1,50 m across at ground level, and 0.69-1.20 m across at the bottom, surrounding an area 90 m in length and 36-60 m in width. On the south side there were two entrances (fig. 260). Inside the enclosure there was probably once a rampart parallel to the ditch with a palisade on top of it. At broader points inside the ditch there were small huts of wattle-and-daub construction. The dwelling area produced hearths, potsherds of the Iwno type, split animal bones, fish remains, large quantities of fresh-water mussel shells, and implements of flint, bone, and horn. In one of the houses there were clay loom-weights, fragments of a bronze pin, and bits of ochre. Among the animal bones were those of cattle, sheep, pigs, horses (?), dogs, deer, roebuck, and aurochs.

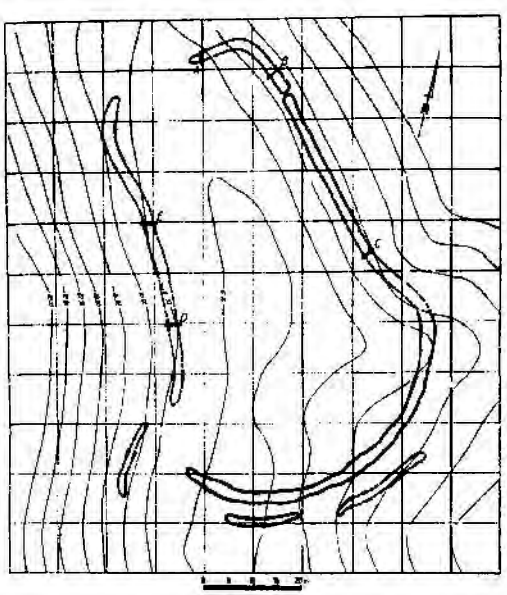


FIG. 260. An enclosure formed by a ditch used to keep domestic animals. Biskupin near Żnin, northwestern Poland. *A-E*, trenches from excavations. *After* Rajewski, 1958.

The excavators believe this enclosure to have been a kraal which served to fence in and shelter domesticated animals against the attacks of wolves, lynx, and bears. Exposure to the wind on elevated ground would have kept the cattle free of insects. This fortified area, covering 5000 square meters, could have held 500 head of cattle.

The discovery of the enclosure at Biskupin gives us new facts on stock-keeping, showing that in the fifteenth century B.C. or earlier a special system for maintaining domesticated animals had been worked out. In such an enclosure the animals of the whole village could be kept. The huts within the ditches and the remains of meals and tools indicate that full-time guards were responsible for the cattle, sheep, horses, and pigs.

3. *The Baltic Middle Bronze Age or Trzciniec period, ca. 1450/1400 B.C. – ca. 1250 B.C.*

The Early Baltic Bronze Age ended with the appearance of Koszider bronzes typical of the first expansion period of the central Europeans. In the Vistula basin, Pomerania, and East Prussia there appeared a series of hoards and isolated finds including spiral arm-rings with spiral-plate ends, "Bohemian" and "Hungarian" battle-axes, massive bracelets with tapered and projecting ends, sickle pins with disc heads and a twisted stem, long pins with biconical heads, low-flanged axes, and other finds.

From the accumulation of hoards and isolated finds along the amber coasts between eastern Pomerania and Samland it is clear that bronzes were imported in exchange for amber as they were in the Early Bronze Age. The amber trade had not diminished as is shown by amber beads in hoards and graves of the Koszider horizon in central Europe and of Late Helladic IIIA graves in Greece. The Hittite statuette discovered at the mouth of Nemunas in Šernai (pl. 16, *1*) very probably arrived via Greece and central Europe in the fourteenth or thirteenth century B.C. In Samland a spiral armring with spiral plate ends of the Koszider type, closely analogous to finds in western Slovakia, western Hungary, and lower Austria was found (Engel, 1935).

To the early part of the Middle Bronze Age may belong a hoard or grave of Brzeźno in the district of Starogard, northern Poland, which included a bronze battle-axe with an almost circular edge and a semiglobular butt (fig. 261, *1*), a triangular dagger blade with a mid-rib and three rivet holes (fig. 261,



FIG. 261. **1,** battle-axe with an almost circular edge and a semiglobular butt; **2,** dagger blade; and **3,** flanged axe with V-shaped flanges from Brzezno, district of Starogard, northern Poland. Scale approx. 1/2. *After* Šturms, 1936a.

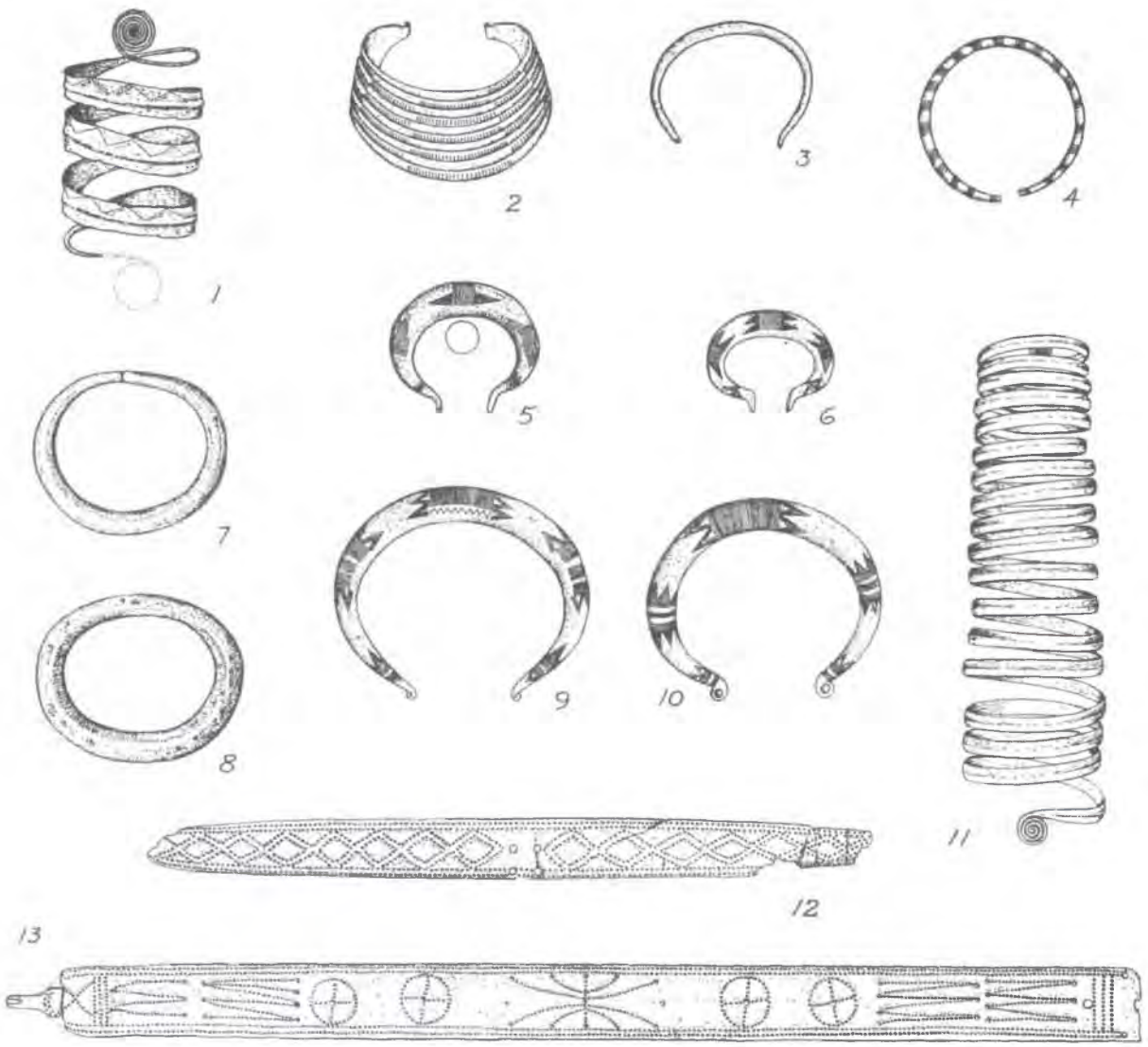


FIG. 262. Ornament types from the hoard of Roscięcino (Rossenthin), district of Kołobrzeg, eastern Pomerania. **1, 11,** spiral arm-rings; **2,** banded necklace; **3-8,** bracelets; **9, 10,** necklets; **12, 13,** belt plates.
Scale approx. 1/4. *After* Kersten, 1958.

2) and a flanged axe with a letter V-shaped stop-ridge (fig. 261, *3*). The battle-axe seems to be a derivative from the late Únětician "Bohemian" axes which had vertical shaft-tube and a circular edge (pl. 46, *1*, *2*). The forms of dagger and flanged axe have analogues in the Koszider horizon of central Europe. The large hoard of Roscięcino (Rossenthin), district of Kołobrzeg in eastern Pomerania (fig. 262), presented a series of bronze objects which can typologically be placed at the end of the early Tumulus or Koszider horizon of central Europe. It contained spiral arm-rings with spiral-plate ends (fig. 262, *1*, *11*), a banded necklace (fig. 262, *2*), bracelets (figs. 262, *3-8*), neck-rings (fig. 262, *9*, *10*), and belt plates with pointillé decoration (fig, 262, *12*, *13*). Bracelets with tapered and projecting ends (fig. 262, *5*, *6*) and neck-rings with tapered ends ending in small spirals (fig. 262, *9*, *10*) were decorated with clusters of vertical and diagonal striations combined with striated triangles on both sides. This motif also appears on massive bracelets of the Koszider type in central Europe. Another group of hoards and isolated finds can be compared to the Třebivlice horizon or middle Tumulus in central Europe, the hoard of Redzikowo (Reitz) being the best representative. This hoard included a battle-axe of the Třebivlice type (fig. 263,



FIG. 263. The hoard of Redzikowo (Reitz), district of Słupsk, eastern Pomerania, northern Poland. **1,** battle-axe of Třebivlice type; **2,** spearhead; **3,** low-flanged axe; **4, 5,** bracelets. Scale approx. 2/3. *After* Kersten, 1958.

1) in addition to a flame-shaped spearhead with an ornamented socket (fig. 263, *2*) , a low-flanged axe (fig. 263, *3*), and two solid and massive bracelets decorated on four sides with vertical striations and striated triangles (fig. 263, *4*, *5*).

The contents of the hoards described above show that the southern Baltic coasts were very strongly influenced by central European metallurgical centers, but there is no evidence to prove actual settlement by the central Europeans along the Baltic coasts. There were no sudden changes in Baltic burial rites and ceramic styles.

In Polish archaeological literature Middle Bronze Age finds in central and eastern Poland and in northern Volynia are named "Trzciniec", after the habitation site near the village of Trzciniec, district of Lublin, eastern Poland. The name was introduced by Kostrzewski in 1930. This Trzciniec "culture" has been and still is considered as separate from the culture in the southeastern Baltic area, and as the main focus from which the Lusatian culture, or its main component, sprang (Jażdżewski, 1948; Kostrzewski, 1948; Nosek, 1948; Gardawski, 1951, 1954, 1959). The Trzciniec culture is moreover, the same culture as that of the Middle Bronze Age in eastern Pomerania, East Prussia, Lithuania, Byelo Russia, and western Great Russia.

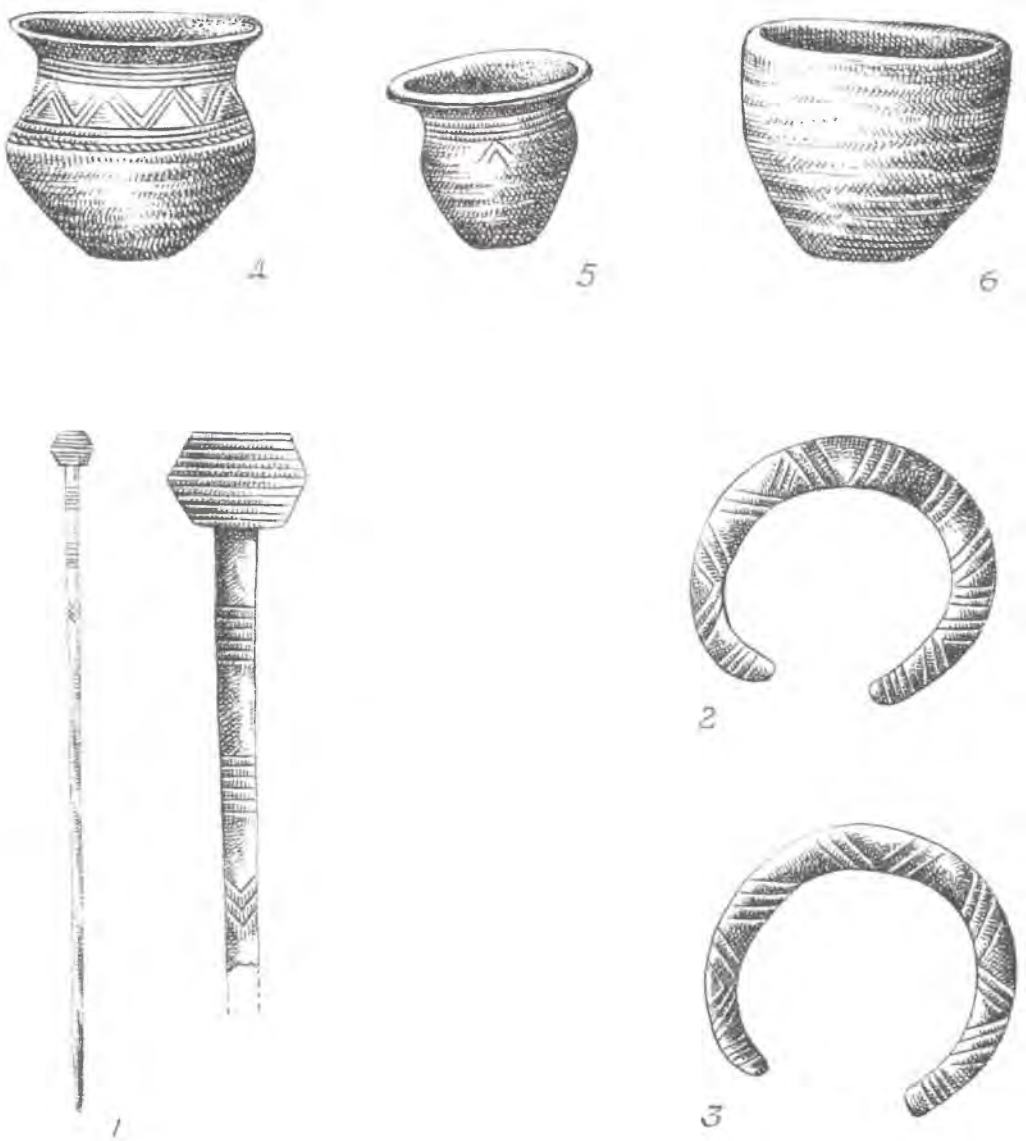


FIG. 264. Grave inventory from the cemetery of Wojdal, northern Poland, parallel to the earliest Middle Bronze Age phase in central Europe. **1,** pin with a truncated biconical head; **1***a*, the upper part of the pin, enlarged; **2, 3,** bracelets; **4-6,** pots of late Iwno type. Scale: pots approx. 1/5; bronze approx. 1/3. *After* Schultze, 1916.

There was a gradual transition from the Early to the Middle Bronze Age over this whole area. The continuity is clearly seen if we compare Early Bronze Age pottery (fig. 253, *2*, *a*, *b*) and the "Iwno" pottery (fig. 258) with the earliest Middle Bronze Age pottery. Compare pottery of the late Iwno type from the grave of Wojdal (fig. 264, *4*, *5*), dated by its association with a pin having parallels in the central European Koszider assemblages (fig. 264, *1*) with pottery from the habitation site and grave at Brzesć Kujawski, lower Vistula area (fig. 265). The habitation sites were located in the same places, usually on high dunes, and they have yielded flint and bone artifacts of very much the same type as in earlier Bronze Age phases in East Prussia and elsewhere in the southeastern Baltic area. There are no grounds to conceive the Trzciniec finds as the representatives of a new culture, just as there are no reasons not to see continuity between the Únětice and the Tumulus cultures. Trzciniec is simply the Middle Bronze Age period of the same Baltic culture.

That the Trzciniec "culture" gave birth to the Lusatian culture is an entirely confused idea. The



FIG. 265. Trzciniec pots from the cemetery and habitation site at Brześć Kujawski, district of Włocławek. **2** and **5**, decorated with horizontal and vertical grooves and incisions of late Iwno character. **2, 6,** grave No. V; **1, 5,** site No. 24; **3,** site No. 13, pit 83; **4,** site No. 5, pit 74. *After* Gardawski, 1959.

so-called proto-Lusatian culture is nothing else but the continuation of the late Únětician culture in eastern Germany and western Poland. The Middle Bronze Age Lusatian variant was contemporaneous with the Middle Bronze Age Trzciniec period, and influences flowed from central Europe to the Baltic culture and not *vice versa*. The expanding central Europeans succeeded in overwhelming a large piece of Trzciniec territory in southern, central, and eastern Poland, but this occurred only during the Urnfield period; during the Late Bronze Age the area south of Warsaw in Poland already belonged to the Lusatians. This is shown by stratigraphy, by changed burial rites, and by pottery. The habitation site at Lutomiersk near Łask in central Poland which yielded Trzciniec pottery was overlaid by a solid layer of sand above which was a Late Bronze Age Lusatian site (Gardawski, 1959, Tab. LXI). The pottery of the Lusatian sites in the area where the Baltic Middle Bronze Age people lived previously shows elements inherited from Trzciniec pottery. In this respect it can be said that the Trzciniec component is to be met in late Lusatian period of southern, central, and eastern Poland, but it is not present in the formative period of the Lusatian variant of the central European culture.

Finds of the Trzciniec type have been well described. In 1959 a large monograph by Gardawski appeared which gives a full picture of the known Trzciniec materials up to 1959, based on 400 sites between western Lithuania, Courish Lagoon, southern Poland, and northern Volynia. They are mainly surface finds, pottery sherds and some flint or bone tools collected on sand dunes, the probable remains of destroyed villages. Only a few are from well-preserved tumuli cemeteries or stratified habitation sites.

Several habitation sites revealed cultural layers 30-60 cm thick which show continuous occupation in one spot (Gardawski, 1959, p. 83). On some elevations near the streams or rivers, finds were scattered over a large area. In the site of Lutomiersk of the Łubna group in central Poland, finds of Trzciniec type were spread over an area of 4500 square meters (Gardawski, 1959, p. 85). This may indicate that villages were not very small, but up to now there are no finds sufficient for the reconstruction of an entire village. In the better excavated sites, pits 70-100 cm deep were usually found: such probable semisubterranean house remains occurred in the habitation site of Narodichi in eastern Volynia (Levitskij, 1931). In it, pits were found 5 × 3 m and 4.5 × 2 m in size, containing burned bones, pottery, clay whorls, and small tanged flint arrowheads.

Thousands of pottery sherds or well-preserved pots have been found. Typical were large and high vessels, usually S-profiled and ornamented with horizontal ridges or deep incisions around the upper part, with rows of horizontal incisions reminiscent of cord-impressed ware. Very often below the incisings were one or two rows of stamping with a triangular implement, or incising in semicircular lines (fig. 265; 266, *1*, *6*, *8*). Along with this new decorating fashion, sherds with cord impression still continue. To the variety of ceramic forms were added bowls (fig. 266, *1*, *3*, *7*; 267, *3*, *4*) and dishes of various sizes, and jugs or terrines standing on a hollow foot, the neck nicely decorated with horizontal, vertical, and semicircular lines, and embossed decorations around the lower belly (fig. 267, *1*). Sherds of sieves and ladles were also found. The ware was yellow or reddish-brown in color, usually not well fired and tempered with quartz and grit, which varied in local groups. Influence from the south is incontestable. Boss-decoration in combination with semicircular flutings above the bosses, as can be seen on vases from the cemetery of Łubna (fig. 267, *1*), have very close parallels in Hungary and Slovakia during Phase B_1, the Koszider horizon. There are also some evidences of influence even from the Incrusted Pottery culture in western Hungary, as a few two-story vases indicate. These cannot be explained as imports, but as southern influences in the Vistula area caused by the first expansion of the central Europeans. Outside influences are absent or hardly noticeable in pottery of the sites in eastern Poland and northern Volynia; it is purely a local type (fig. 268). Small triangular arrowheads with concave or straight bases, flint knives, and sickles and perforated stone axes were used, as they were during the preceding phase.

In the 1950's over 20 habitations sites with pottery and stone implements related to the Trzciniec

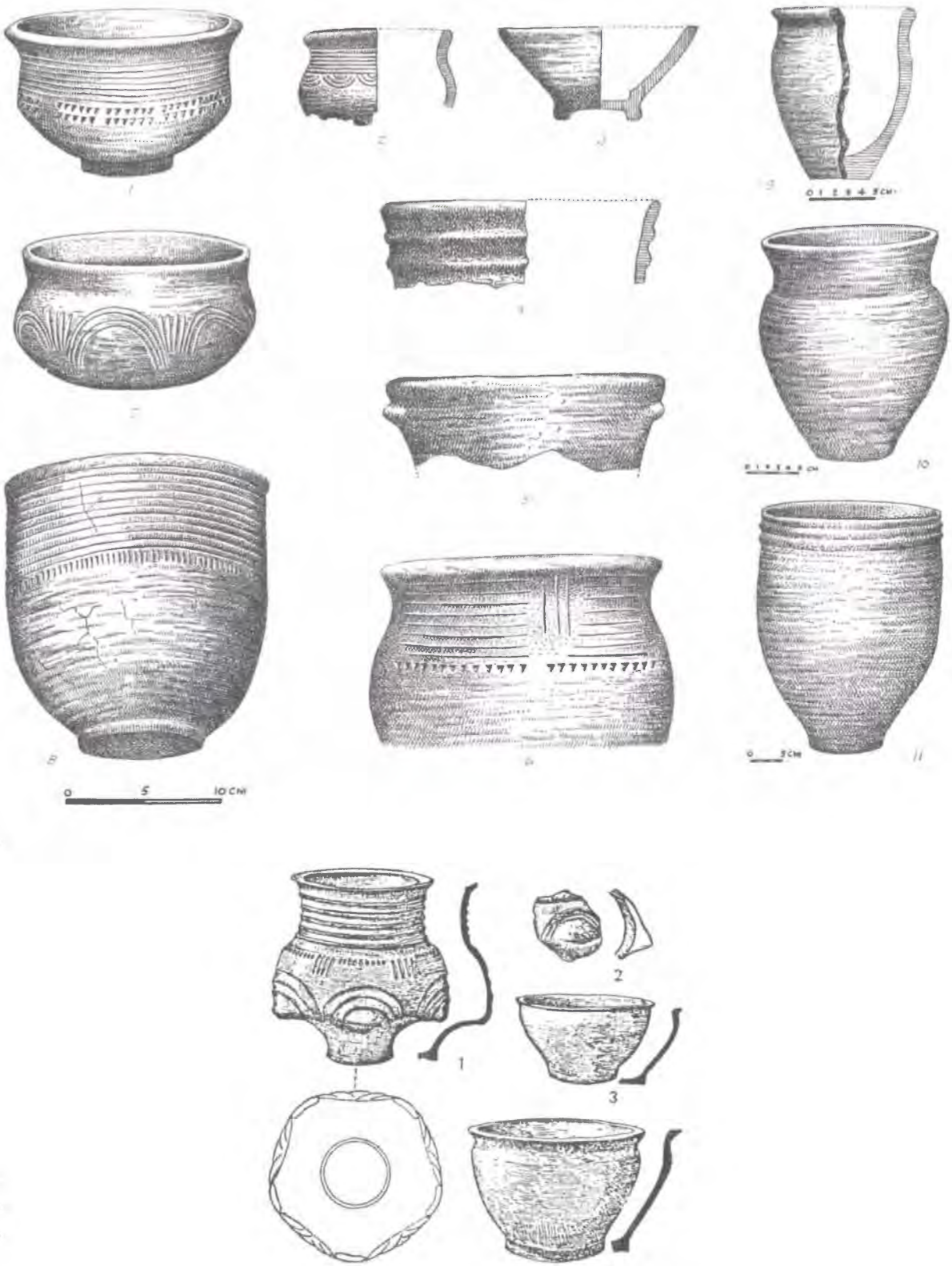


FIG. 267. **1***a*, vase of central European type of the first expansion period (B_1, Koszider horizon); **1***b*, view of the same from the bottom; **2**, fragment from another similar vase with boss-decoration; **3, 4**, bowls. Cemetery of Łubna near Sieradz, central Poland, tumulus No. 23. Scale: **1, 3**, 1/6; **2, 4**, 1/3. *After* Jażdżewski, 1948.

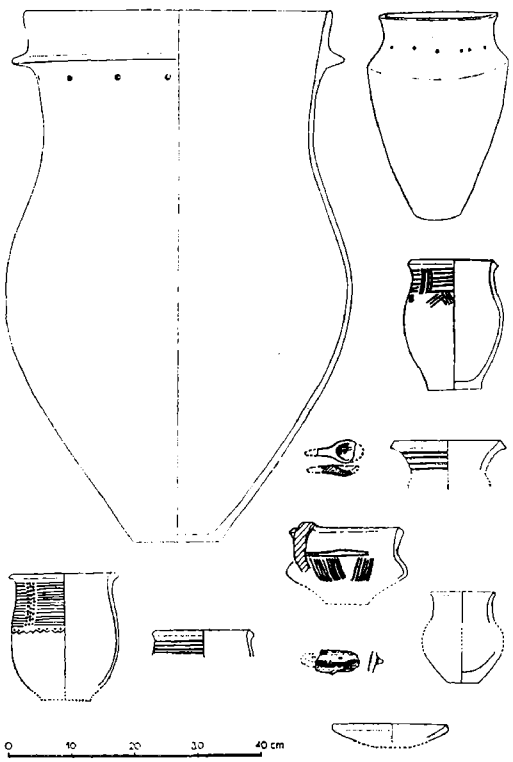


FIG. 268. Pottery forms of the eastern Polish (Lublin)-Volynian group of the Middle Bronze Age (Trzciniec) period. Habitation site of Kostjanets (Kościaniec), district of Dubno.
After Gardawski, 1959.

type were excavated in the middle Desna and lower Sejm basins, located in the Chernigov district of the northern Ukraine. Since the largest number of finds were made around Sosnitsa, this eastern branch of the Baltic Middle Bronze Age was labeled the "Sosnitskaja culture" (Berezanska, 1957; Berezanskaja, 1957; 1960). Here, too, the villages were situated on sand dunes along the river valleys and, as elsewhere, yielded mostly ceramic materials, triangular flint arrowheads with tangs, polished stone axes with perforations, quartzite celts, and bones of cattle, sheep, horses, and pigs. In the sites of Ivanovka and Boronika, dwellings at a depth of over 1 m and from 6 to 7 m in diameter came to light. Within the dwellings were found fragments of twigs daubed with clay, which may have fallen from the roofs or walls. Pots from the Sosnitskaja group were of typically Trzciniec form: beakers with slightly bulging bellies and outturned rims, decorated with incisions in horizontal or diagonal bands and sometimes with a ridge below the neck (fig. 269). The clay, of a reddish or yellow color, was tempered with crushed granite, and the surface was polished.

Burial rites more or less continued along similar lines. In many cases only a few barrows were preserved, and only one or two have been excavated. The largest and the best excavated is the cemetery of Łubna, in the district of Sieradź (Jażdżewski, 1948; Gardawski, 1951). In it 29 tumuli were preserved in groups placed randomly and close to each other, usually only one meter or less in height and 20 meters or more in diameter (fig. 270). The humus below one barrow was covered with a layer of white sand. Large boulders of various sizes indicate stone cist-like structures or at least protection over the tombs. Stones sometimes covered only that part of the grave where the head of the dead man lay. Layers of ashes in the tumuli indicate extensive funeral ceremonies.

In addition to inhumation, cremation rites appeared toward the end of the Middle Bronze Age. The ashes were placed in stone cists or in long oval pits without cinerary urns. In the cemeteries of Wolica

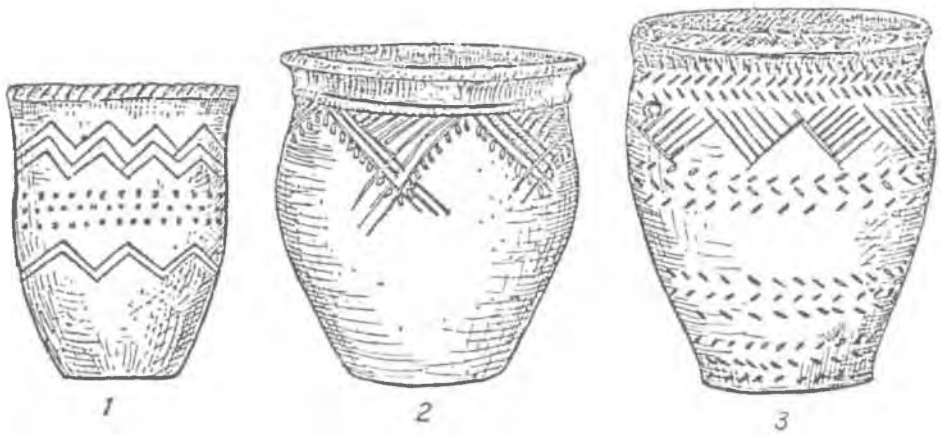


FIG. 269. Middle Bronze Age pots of the Sosnitskaja group in the Ukrainian Polesie, district of Chernigov. **1, 2,** Ivanovka site; **3,** Dolinskoe site. Scale approx. 1/4. *After* Berezanskaja, 1960.



FIG. 270. Cross-section of a barrow from the cemetery of Łubna, eastern Poland. *After* Gardawski, 1951.

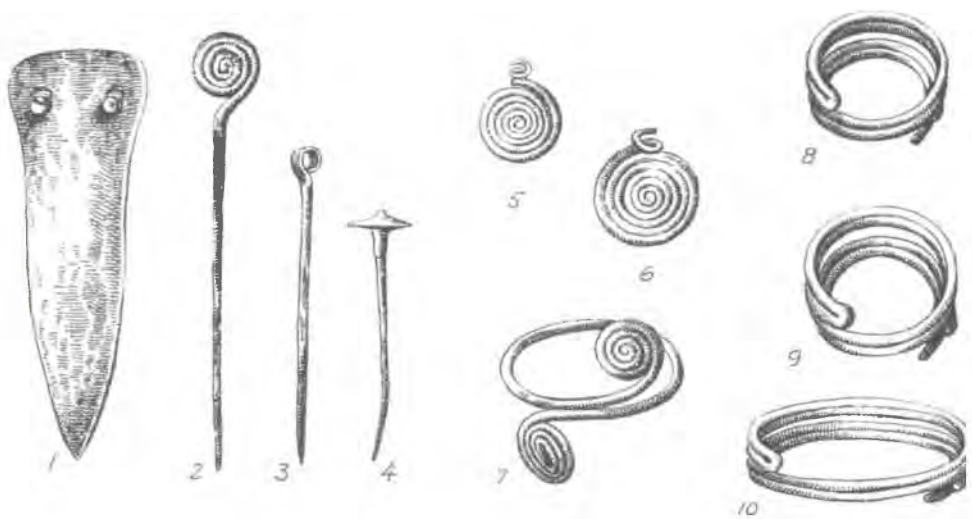


FIG. 271. Finds from the cemetery of Łubna, district of Sieradz, central Poland. **1,** dagger blade; **2, 3,** pins with spiral heads; **4,** pin with a flat conical head; **5, 6,** circular spiral-plate pendants; **7,** arm-ring with spiral ends; **8-10,** hair-rings. **1, 7, 10,** bronze; **8, 9,** gold. Scale: **1-3,** 1/1; **4, 5, 7,** 1/2. *After* Jazdzewski, 1948.

Nowa near Wloclawek, central Poland, and Narodichi in Volynia, both inhumation and cremation graves are in evidence (Jażdżewski, 1948, p. 130; Levitskij, 1931). Cremation did not replace the inhumation rites entirely. It appeared at about the same time as did the first cremation graves in Silesia and eastern Germany, and spread no farther north and east than central Poland.

Bronze objects found in the cemeteries of Łubna, Wolica Nowa, or in hoards show some common features with bronzes of the late Tumulus early Lusatian culture and also some local variations. The graves of Łubna yielded a fairly large number of bronze and gold artifacts: circular spiral-plate pendants made of round wire (fig. 271, *5*, *6*) or circular plates with a concentric circle ornament, probably used for belt or dress decoration; gold and bronze hair-rings of various sizes (fig. 271, *8-10*); arm-rings with spiral-plate ends (fig. 271, *7*); dagger blades with two rivet holes (fig. 271, *1*); spiral armbands and pins with larger or smaller spiral heads (fig. 271, *2*, *3*) or with a flat conical head (fig. 271, *4*). Many of these finds have close parallels in the central European graves or hoards of Phase B_2 and Phase C, but pins with spiral heads seem to have become a national ornament of the Baltic culture. They are met in several other cemeteries besides Łubna (e.g., in the cemetery of Obrót, district of Oleśnica: Richthofen, 1926, Taf. 3) and in the next chronological phases they continue to be the most typical Baltic ornament. To this time horizon belong two outstanding hoards from Poland: Dratów near Trzciniec in the district of Pulawy (pl. 81) and Rawa Mazowiecka in the district of Łódź (Gardawski, 1956). The bronze types from these hoards, spiral arm-rings made from a wire, triangular in cross-section (pl. 81, *8*), bracelets or arm-rings with spiral-plate ends (pl. 81, *6*, *7*), massive bracelets, circular in cross-section, with tapered ends and decorated with herringbone motifs and clusters of striations (pl. 81, *2-4*) – are later developments of Middle Bronze Age forms. The diadem made of a broad band ornamented with pointillé decoration and a cross motif in front, in the hoard of Dratów (pl. 81, *1*) is a find unique in central Europe. It is not impossible that Dratów and Rawa Mazowiecka bronzes found within large, Trzciniec type, pots, were manufactured on the spot. The bronze objects from the hoards of Dratów and Rawa

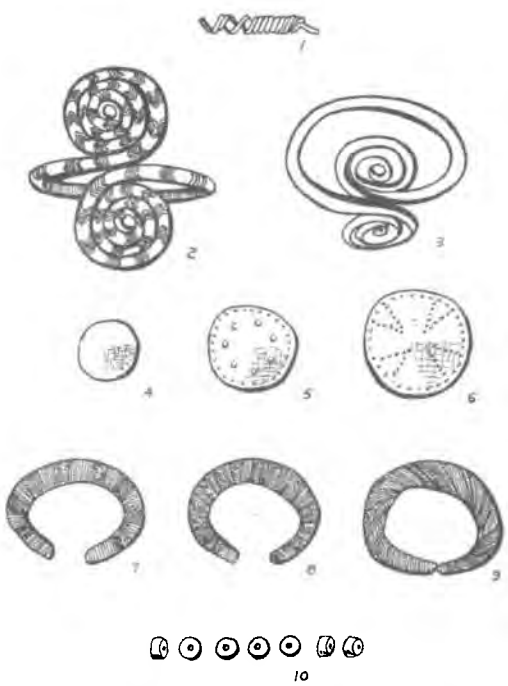


FIG. 272. Basic types of finds from the hoard of Żydów, district of Stopnica, southern Poland. **1**, copper spiral; **2, 3**, arm-rings with spiral plate ends; **4-6**, convex plates; **7-9**, bracelets; **10**, blue glass and amber beads. Scale approx. 1/4. *After* Żurowski, 1922.

Mazowiecka were submitted to metallurgical tests, which showed that the bronze ornaments were made by cold hammering, with the exception of the diadem (pl. 81, *1*) which was forged (Gardawski, 1956, p. 102). Chemical analysis on objects from these two hoards revealed that the bronze used in the ornaments was a tin alloy of copper, with the percentage of tin in 25 of the objects ranging between 2.36 and 11.74 per cent, the mean being 7.00% per cent (Gardawski, 1956, p. 67). To the same phase should belong another large hoard, found at Żydów near Stopnica in southern Poland, which contained, in addition to bracelets (fig. 272, *7-9*) and arm-rings with spiral end plates (fig. 272, *2*, *3*), a great number of circular convex ornamental plates decorated with embossing and pointillé technique like that of the diadem of Dratów (fig. 272, *4-6*), and blue glass and amber beads (fig. 272, *10*).

4. *The Classical Baltic Period, ca. 1250 B.C. – ca. 1100 B.C.*

The Classical Baltic period was contemporaneous with the second expansion period of the central European culture and consequent prosperity in the twelfth century B.C. The Baltic culture lost a large part of its territory: the upper Vistula basin, the Kraków-Lublin area in Poland, was conquered by the Lusatians. The sites of Trzciniec type were replaced by Lusatian urnfields and habitation sites. The Lusatian culture in central and southern Poland and in western Volynia gradually developed into a separate variant greatly influenced by the Baltic culture. The assimilation process continued for a long period; the islands of Baltic culture must have existed among the Lusatians, as the purely Baltic pottery of some sites indicates (Topornica, district of Zamość; Młyniska, district of Włodzimierz: Głosik, 1957).

"Classical" refers to the growth of a metal culture. In spite of the Lusatian expansion and strong outside influences on the remaining Baltic lands, many typically Baltic bronze objects were produced. In this respect, this culture for the first time began to show more independence and creativity. On the coast of Samland, in the lower Vistula area, and in eastern Pomerania, the richest finds of metal artifacts are made. Graves, hoards, and isolated finds give us a picture of several successive phases, which I have labeled classical I and II.

a. *Classical I*

This period was characterized by the appearance of local forms: Baltic battle-axes (also called "Nortycken" axes), pins with large spiral heads made of round wire, and flanged axes with a concave body. To this assemblage belong flange-hilted swords, spearheads with plain wings, and bracelets oval or lens-shaped in cross-section, plain or decorated with vertical or diagonal striations of a net pattern.

The stratigraphy in burial mounds is of special value for chronology here. The best starting point is the cemetery of Rantau (Rantava) near Rauschen in Samland (Bezzenberger, 1904, pp. 15 ff.; Šturms, 1936, pp. 108 ff.), which consisted of 12 burial mounds. Barrow I (fig. 273), 2.3 m high, 9 m in diameter, contained 20 graves of different levels belonging to the various periods from classical to late Baltic Bronze Age. Grave A in the center was the oldest (fig. 273, *A*). The uncremated body was furnished with fragments of a sword, which was presumably of an early flange-hilted type (fig. 274, *1*), a Baltic battle-axe (fig. 274, *2*), a bracelet (fig. 274, *3*), an ear-head pin with a short cylindrical head (fig. 274, *5*), and a broken necklet (fig. 274, *4*). The grave also contained annular dark-blue glass beads, 0.7-0.9 cm in diameter (fig. 274, *7*) and a fragment of a wooden artifact (fig. 274, *6*).

Similar assemblages of finds were brought to light in the barrow cemeteries of eastern Pomerania. Pins with large spiral heads (fig. 275, *5*, *6*), ear-head pins with plain cylindrical heads (fig. 275, *3*, *4*), bracelets decorated with vertical and diagonal striations (fig. 275, *7*, *8*), short spearheads with plain wings (fig. 275, *2*), and flanged axes with a body concave between the butt-end and the edge (fig. 275, *1*)

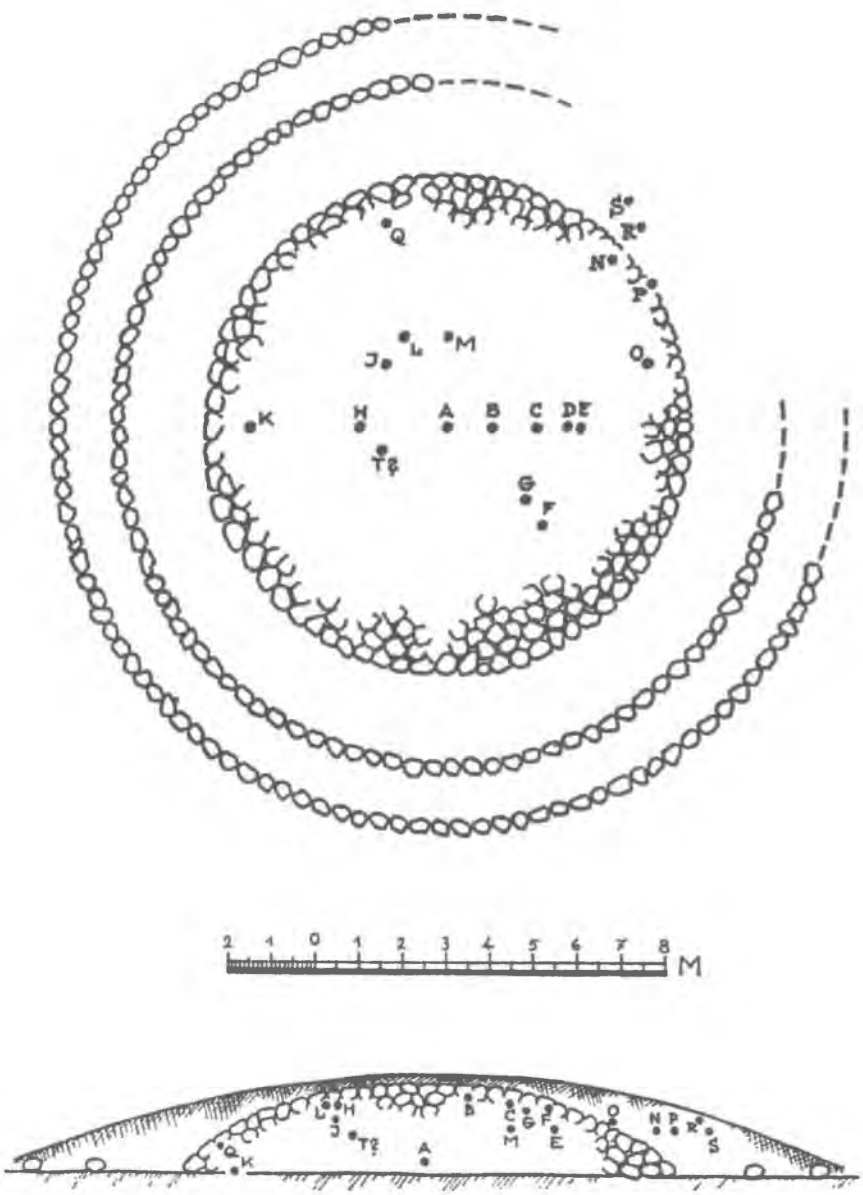


FIG. 273. Plan and cross-section of tumulus No. I of the cemetery at Rantau (Rantava), Samland. *A*, earliest grave, Classical Baltic I, *ca.* thirteenth century *B.C.*; *B-M*, Classical Baltic II graves, *ca.* twelfth century *B.C.*; *O-S*, end Bronze Age–Early Iron Age graves. *After* Šturms, 1936a.

were found in the cemetery of Borzęcino (Bornzin), district of Słupsk (Stolp), west of the lower Vistula. Finds including Baltic battle-axes, flanged axes, bracelets, and ear-head pins were made in the barrow cemetery of Malczkowo (Malzkow), also in the district of Słupsk (Kersten, 1958, pl. 100 no. 893). Baltic battle-axes and flanged axes of this cemetery had somewhat wider edges. A gold finger-ring was discovered here. Gold items, usually spiral finger-rings, have also been found in hoards and graves near the lower Oder. In the hoard of Trzebiatów (Treptow), the district of Gryfice, gold finger-rings were found in a small box covered with a bronze cover together with a sickle and bronze finger-rings (Kersten, 1958, pl. 79, no. 744).

The Rantau sword shows general similarity to the Sajó-Gömör type (fig. 75, *1*). About ten other flange-hilted swords have been found in East Prussia and western Lithuania, but all are isolated finds

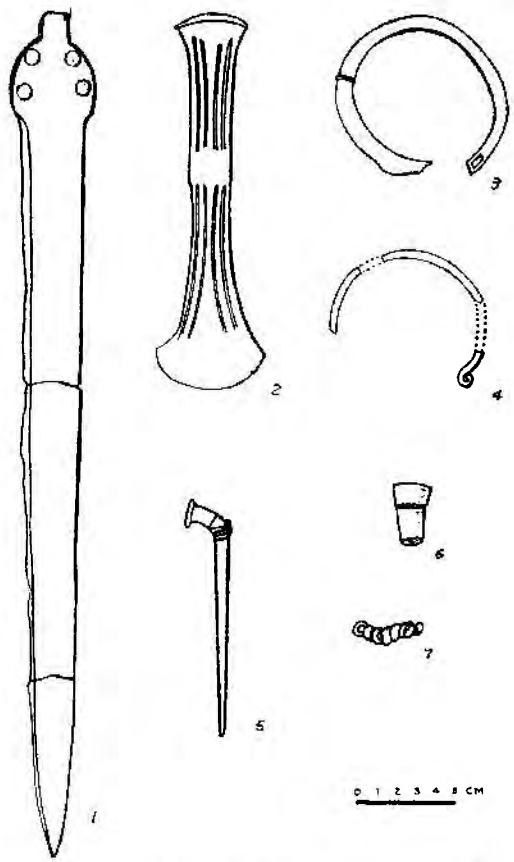


FIG. 274. Finds from the central grave in barrow No. I of the Rantau cemetery. **1,** flange-hilted sword; **2,** Baltic battle-axe; **3,** bracelet; **4,** necklet; **5,** ear-head pin (with broken ear); **6,** fragment of a wooden artifact; **7,** blue glass beads. *After* Arbman, 1933.

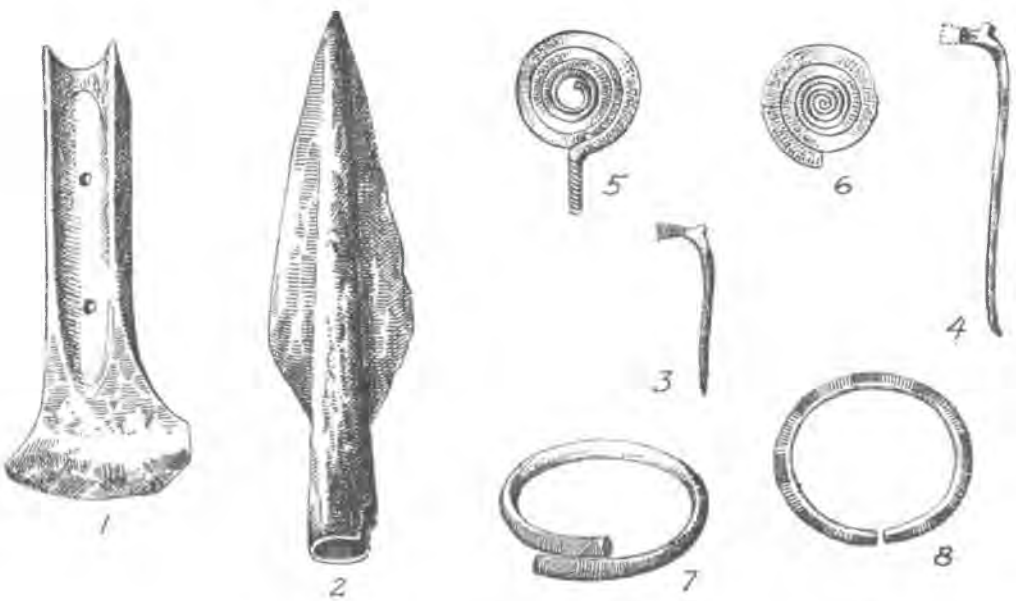


FIG. 275. Grave inventory from the barrow of Borzęcino (Bornzin), district of Słupsk, northern Poland. **1,** Baltic flanged axe; **2,** spearhead; **3, 4,** ear-headed pins; **5, 6,** pins with spiral plate heads; **7, 8,** bracelets. Scale approx. 1/3. *After* Kersten, 1958.

and many of them badly preserved (cf. Engel, 1935, pl. 91; Šturms, 1936, pp. 47, 48, 99, 100, 118, 138). They may belong to the Classical I, Classical II, and even later periods.

The Baltic battle-axe or the Nortycken axe, named after the place in Samland where a hoard of 24 of this type was discovered, is long and narrow with four ornamental furrows along both sides of the body. Such graceful axes are distributed along the southern coasts of the Baltic Sea between Schleswig-Holstein and Latvia (Arbman, 1933), and a fairly large number were found in East Prussia and western Lithuania. In western Lithuania near Varniai, a specimen with three ornamental furrows was discovered

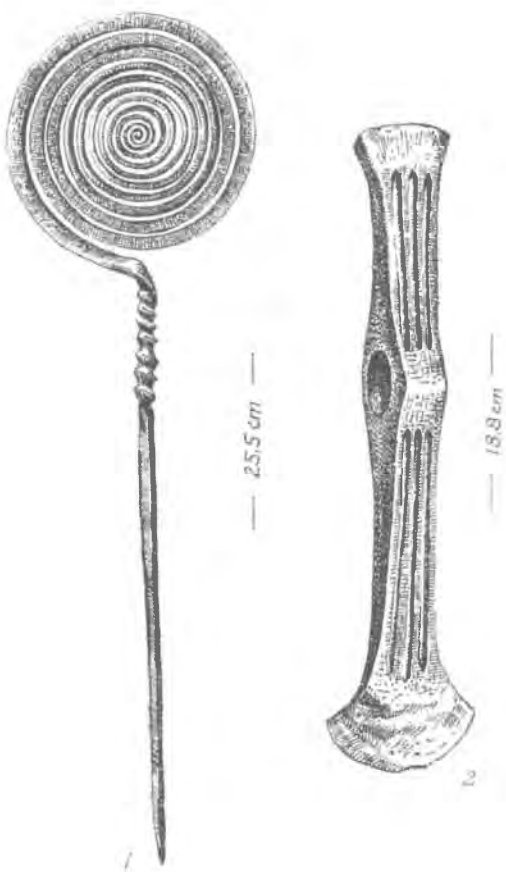


FIG. 276. **1**, spiral plate pin and **2**, Baltic battle-axe from the peat-bog at the confluence of Resketa and Virvyčia near Varniai, western Lithuania. *After* Puzinas, 1938.

in a peat bog together with a long spiral-head pin (fig. 276). These Baltic battle-axes exhibit variations in form; some of them have a narrow edge and butt-end, and some even a semicircular edge and broad rounded butt-end. The variation indicates that the type had a fairly long existence in the southern Baltic area. A type with a semicircular edge and with the butt-end distinct from the body represents a later development; such axes are found in Latvia, Lithuania, East Prussia, and northern Poland, but not in the western Baltic area. In the hoard of Czubin near Błońsk in the Warsaw region (the farthest south for this type of axe), a Baltic axe (fig. 277, *1*) appeared with Baltic type flanged axes (fig. 277, *3*, *4*) and an early Lusatian socketed celt with a long socket (fig. 277, *2*).

The Baltic or Nortycken axes seem to have developed in the southern Baltic area. Their parent or rather "grandparent" form apparently is the so-called Bohemian axe with a long shaft-tube from the late Únětician period (cf. the axes from the hoard of Apa, fig. 26, *5*, and from the hoard of the Nitrianski Hrádok, pl. 11, *2*, *3*). They appeared in the Baltic area not later than the fifteenth century B.C. One copy

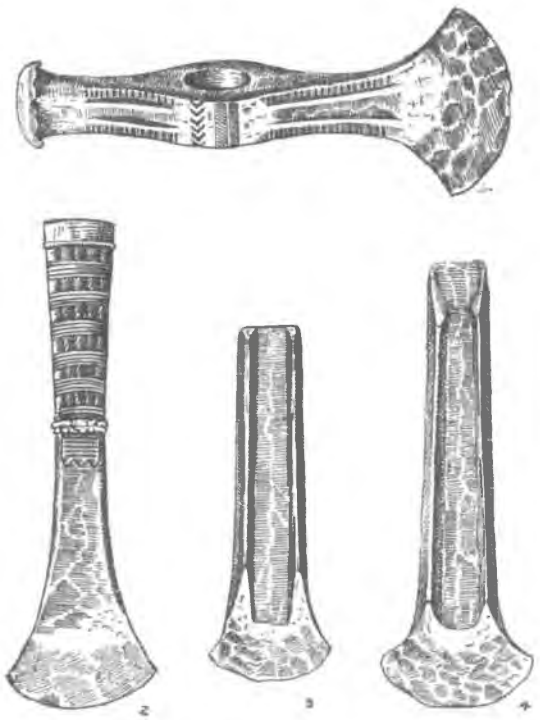


FIG. 277. The hoard of Czubin near Błońsk, Warsaw area, Poland. **1**, Baltic battle-axe; **2**, socketed celt of early Lusatian type; **3, 4**, Baltic flanged axes. Scale approx. 1/3. *After* Sulimirski, 1928.

was found in Klein Bünzow in the district of Greifswald, Pomerania (Kersten, 1958, no. 309). They were probably imitated locally until the Baltic form was born. Some Baltic examples preserved even the cylindrical ribbed shaft-tube (cf. a copy of Schwichtenberg near Demmin, western Pomerania: pl. 82). "Baltic" is used here in the geographic sense, for these axes were spread over the western Baltic and the southeastern Baltic coasts. Axes found west of the Oder River frequently have a decorated blade and body which seems to be a western Baltic feature, for the eastern examples always have a plain blade. Baltic battle-axes on long wooden shafts are engraved on rocks at Simris in Scåne, southern Sweden (Althin, 1945, pl. 1), with war chariots and ships on the same rock. This is evidence of the important role of the Baltic axe in religion. In fact, bronze axes took the same place in religion which stone battle-axes had held in earlier times.

The lower Oder area was a meeting point for western and southeastern Baltic forms, but some typical Northern Bronze Age artifacts traveled along the Baltic Sea coast as far east as Samland or western Lithuania and *vice versa*, while the southeastern Baltic forms reached Denmark and Sweden. Willow-leaf-shaped spearheads with an ornamented socket from the western part of East Prussia are of the Northern Bronze Age type (Šturms, 1936a, pl. 19, *a*). Stone maceheads of a slightly flattened-spherical form with segmented edges may belong to this period, occuring in both East Prussia and eastern Lithuania. A bronze shaft-ring for a stone macehead from Germau, Samland, is closely paralleled by a specimen in southern Sweden, in the hoard of Torpa near Jönkoping, Smoland (Šturms, 1947, p. 4).

Confirmation of commercial relations between the amber-producing area of the southeastern Baltic, central Europe, and Italy is furnished by the occurrence of daggers common in the eastern Alpine and western Carpathian area, in the sites of northern Italy (Peschiera, Cremona), in Pomerania, and in East Prussia (fig. 278). Two such daggers appeared in the above-mentioned barrows of Malczkowo, district of Słupsk, northern Poland (Kersten, 1958, pl. 100, no. 893, *d, e*), linking the Baltic Classical I with Urnfield I in central Europe and with the Peschiera horizon in northern Italy.

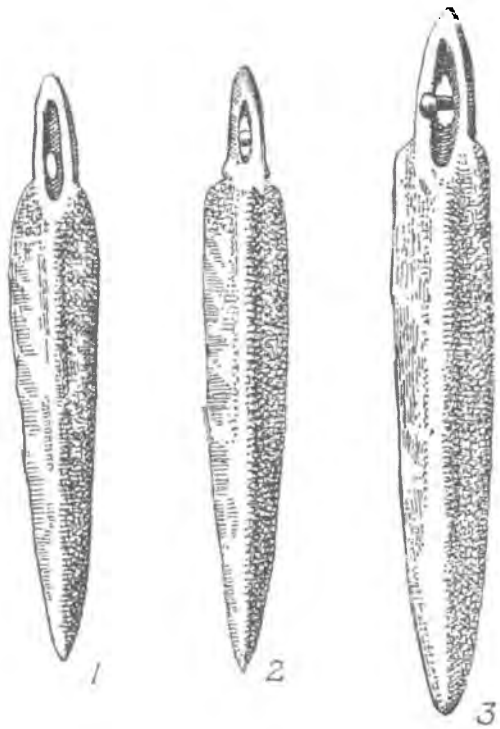


FIG. 278. Daggers from Italy, Pomerania, and East Prussia. **1**, Province of Reggio, northern Italy; **2**, Wartin cemetery, district of Randow, lower Oder; **3**, former Kraftshagen, district of Friedland (present Pravdinsk), southeast of Königsberg (Kaliningrad). Scale: **1**, approx. 2/3; **2**, **3**, 1/2. *After* Säflund, 1939 **(1)**; Kersten, 1958 **(2)**; Engel, 1935 **(3)**.

Individual Baltic types point to local metallurgical centers along the coastal area. Hoards like that of Nortycken in Samland containing 24 Baltic axes very probably belonged to a founder. The areas richest in metal were those centered on the trade routes, particularly in the lower Vistula basin and Samland; almost no bronzes have been found in the eastern parts of Lithuania and Latvia, nor in Byelo-Russia. Stone axes were made in imitation of bronze flanged axes, indicating that metal was still an expensive item.

Habitation sites from this phase have not been discovered and therefore the ceramic, bone, and stone industries are sparsely documented. Rantau I pots were undecorated, having a low beaker form (fig. 279, *A*).

b. *Classical II*

The inhumation graves in the Rantau barrow, marked by B-M in the diagram (fig. 273) were furnished with ear-headed pins with thick cylindrical widening ends, decorated with vertical or diagonal strokes and crisscrosses (fig. 280, *1*, *4*, *7*, *8*), pins with heavily ribbed heads (fig. 280, *2*, *3*), pins having large spiral-plate heads (fig. 280, *5*), bracelets of a round or oval cross-section with thinning ends, decorated with vertical or vertical alternating with horizontal strokes (fig. 280, *9*, *10*), tutuli, knives, conical ornamental plates or buttons (fig. 280, *13-15*), many globular or semiglobular amber beads with cylindrical bore (like that in fig. 280, *11*, *12*), and rectangular amber spacers with a cylindrical bore along both ends (fig. 280, *16*). Many of these Rantau II bronze objects are successors to the Rantau I forms. Pots continued to be undecorated, and cylindrical necks or wide mouths (fig. 279, B) are typical.

Grave material almost identical to that of Rantau II was found in the tumuli distributed in the

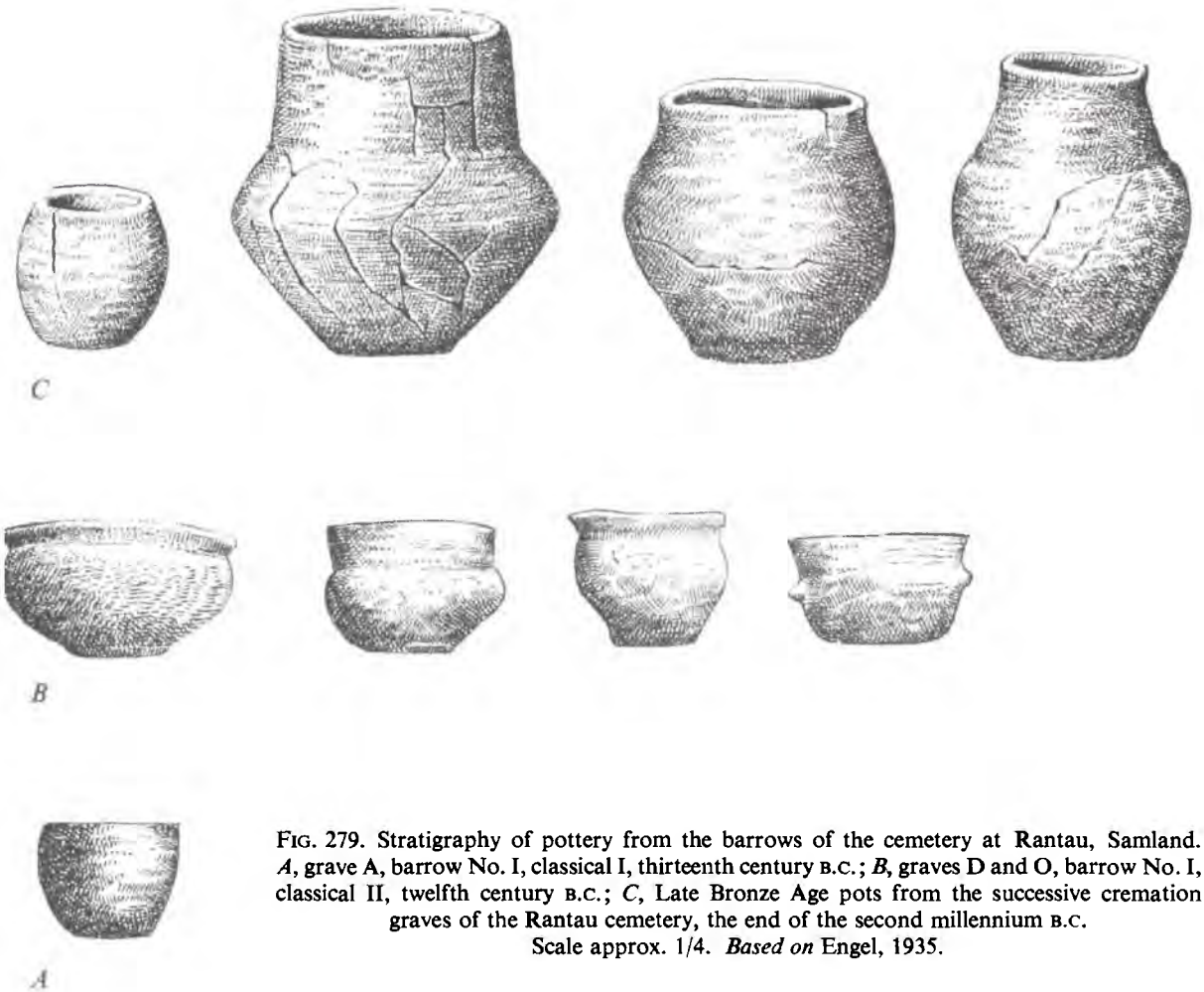


FIG. 279. Stratigraphy of pottery from the barrows of the cemetery at Rantau, Samland. *A*, grave A, barrow No. I, classical I, thirteenth century B.C.; *B*, graves D and O, barrow No. I, classical II, twelfth century B.C.; *C*, Late Bronze Age pots from the successive cremation graves of the Rantau cemetery, the end of the second millennium B.C.
Scale approx. 1/4. *Based on* Engel, 1935.

coastal area between the lower Oder and western Lithuania. Of note are important cemeteries of tumuli in Borkowo and Nacław (Natzlaff), district of Slawno; in Dretyń (Treten) and Kołczyglowki (Neu-Kolziglow), district of Miastko (Kersten, 1958, nos. 853, 863, 919, and 924); in Alknikiai (Alknicken), located in the vicinity of the Rantau cemetery, in Šlažai, Klaipėda district, western Lithuania (Šturms, 1936a, pp. 100 fl.); and in Warszenko, district of Kartuzy, near the lower Vistula (Šturms, 1936, 120). In the southwest, finds of this type reach the Warta River in the district of Poznań, and the area of Jarocin and Konin.

In addition to pins and bracelets like those from the graves of Rantau II, we find knives with ring-heads of a central European type. There are also ornamental belt plates, tutuli with parallels in the Northern Area Bronze Age. In the cemetery of Alknikiai near Fischhausen, East Prussia, one grave held a late variant of the Baltic (Nortycken) axe (pl. 83, *d*), a Baltic ear-head pin with a widening cylindrical head (pl. 83, *b*), a flattened-spherical amber bead (pl. 83, *k*), a central European ring-head knife (pl. 83, *c*), and tutuli of the western Baltic type (pl. 83, *a*, *e-h*). This well illustrates the contemporaneity of the classical Baltic II period with the classical Lusatian or the Urnfield II period in central Europe and the Period III of the Northern Bronze Age. It also indicates cultural ties with the south and with the west. A peculiar and unique sword presumed to be of central European origin (fig. 281, *1*) was found in a barrow at Nacław in eastern Pomerania in association with typical Baltic forms: a large pear-shaped pot (fig. 281, *2*), an ear-head pin with an inverted conical head (fig. 281, *3*), and a bracelet (fig. 281, *4*).



FIG. 280. Classical II ornaments: **1, 4, 7, 8,** ear-headed pins with cylindrical widening ends; **2, 3,** pins with ribbed heads; **5,** pin with a spiral-plate head; **6,** pin with an inverted conical head; **9, 10,** bracelets; **11,** spherical amber bead; **12,** conical amber bead; **13-15,** ornamental plates or buttons of bronze; **16,** amber spacer bead. **1-11, 16,** graves D-K, Q, S of the Rantau barrow No. I; **12-15,** barrow No. II. Scale approx. 2/3. *After* Šturms, 1936a.

To Classical II belong a series of hoards and tumuli in eastern Pomerania containing bracelets with large spiral-plate ends ("Spiralarmbergen") called bracelets of "Mecklenburg type" (fig. 282, *7*), bracelets made of bronze bands decorated with striated triangles (like that in fig. 282, *1*), slightly ribbed bracelets, ornaments made of double-spiral pendants connected in the middle with a bronze plate (fig. 282, *8*), necklaces made of spiral tubes separated with V-shaped beads (fig. 282, *5*), bronze belt plates with pointillé decoration (fig. 282, *6*), double-conical ribbed bronze beads (fig. 282, *2*), spiral finger-rings (fig. 282, *3*) and spiral arm-rings (fig. 282, *9*). These finds were brought to light in the tumuli of Trzebiatów (Treptau-Spinnkathen), district of Gryfino (Greifenberg), east of the lower Oder. In figure 282 one grave inventory is illustrated. The hoard of Wierzbięcin (Farbezin) near Nowogard, immediately east of the lower Oder, in addition to the same kind of bracelets, included plain socketed celts and a short spearhead with plain wings (Kersten, 1958, pl. 75). The chronological position of these bronze finds and their relation to central Europe is indicated by the spiral-plate fibulae of the Spindlersfeld type with which they were found (like that in fig. 86, *2, 5, 6*; the same is seen from the finds of the tumuli of Buczek, district of Białogard: Kersten, 1958, pl. 92, no. 814).

Many bronzes showed forms common to classical Lusatian and to all central Europe. Of frequent occurrence in Pomerania and East Prussia are median-wing axes (fig. 283, *3*), palstaves (fig. 283, *2*), and button and tanged sickles (Kersten, 1958, pl. 71, no. 694: hoard of Pomerania; Šturms, 1936a, pl. 21, *g, h*). In the hoard found near Rauschen, district of Fischhausen, a median-wing axe and a button sickle (similar to the sickle from the hoard of Littausdorf, illustrated in fig. 284:2) were discovered in association with a Baltic flanged axe, a late variant of the Baltic (Nortycken) axe, and bracelets round in cross-section (Arbman, 1933, p. 7, Abb. 4). In the lower Vistula area, in Suchostrzygi, district of Trzew, a central European lanceolate spearhead was found (fig. 283, *1*). Small triangular arrowheads of bronze were used in East Prussia, as were they in the Lusatian culture. Such finds indicate persistent trade relations with central Europe. Influences thence seem to have been stronger than during Classical I.

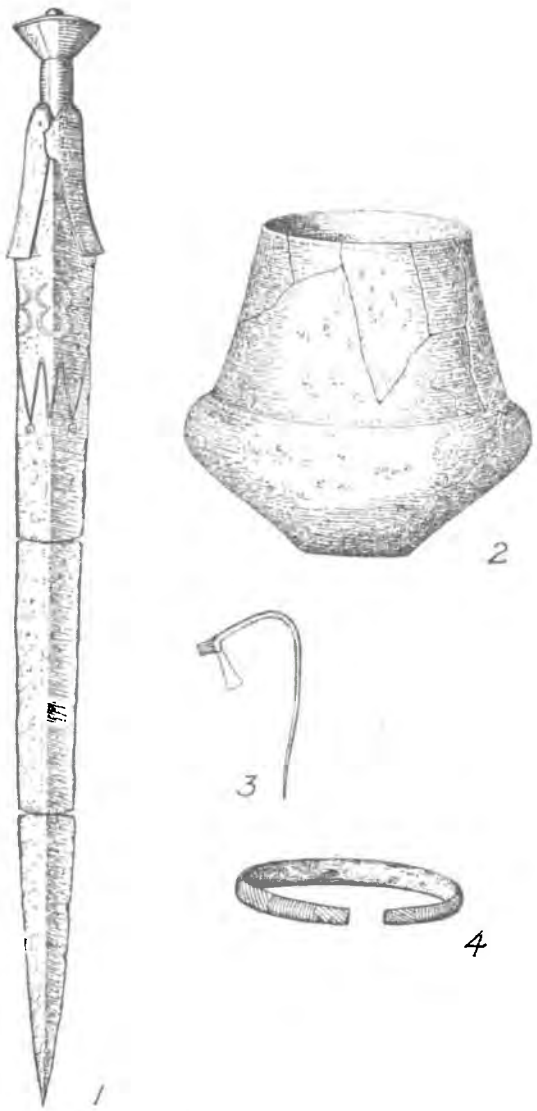


FIG. 281. Finds from the grave at Nacław (Natzlaff), district of Sławno (Schlawe), eastern Pomerania. **1,** sword presumably of central European origin; **2,** Baltic pear-shaped pot; **3,** pin with an inverted conical head and an ear; and **4,** bracelet. Scale: sword 52 cm. long; pot 31 cm. high. *After* Kersten, 1958.

The discovery of tumuli of the Baltic type with a pyramidical stone structure in the middle of the barrow and cremation graves in urns in association with fibulae having spiral catch-plates and a flattened bow of Spindlersfeld type indicates when cremation was introduced in the southern Baltic area. The earliest cremation graves east of the lower Oder have been discovered in the barrows of Czarnowo near Pyrzyce (fig. 86, *1-3*) and Zuch near Szczecinek (Kersten, 1958, pl. 94, no. 842). During this period, however, cremation did not penetrate further into Baltic territory.

Founders' hoards are reported from various places in East Prussia. One of the richest was found in 1902 in Littausdorf (Lietuvnikai), district of Fischhausen, near the Baltic Sea, containing 64 button sickles of Lusatian (Saxo-Thuringian) type, 11 spearheads, 7 socketed celts, and 36 bracelets (Bezzenberger, 1904, pp. 25-27): the main types in the hoard are illustrated in figure 284. The specimens were covered with a large piece of copper ore. Most of the spearheads, celts, and sickles were broken, unfinished, or defective. The bracelets were not sufficiently closed and some had been stretched out. The

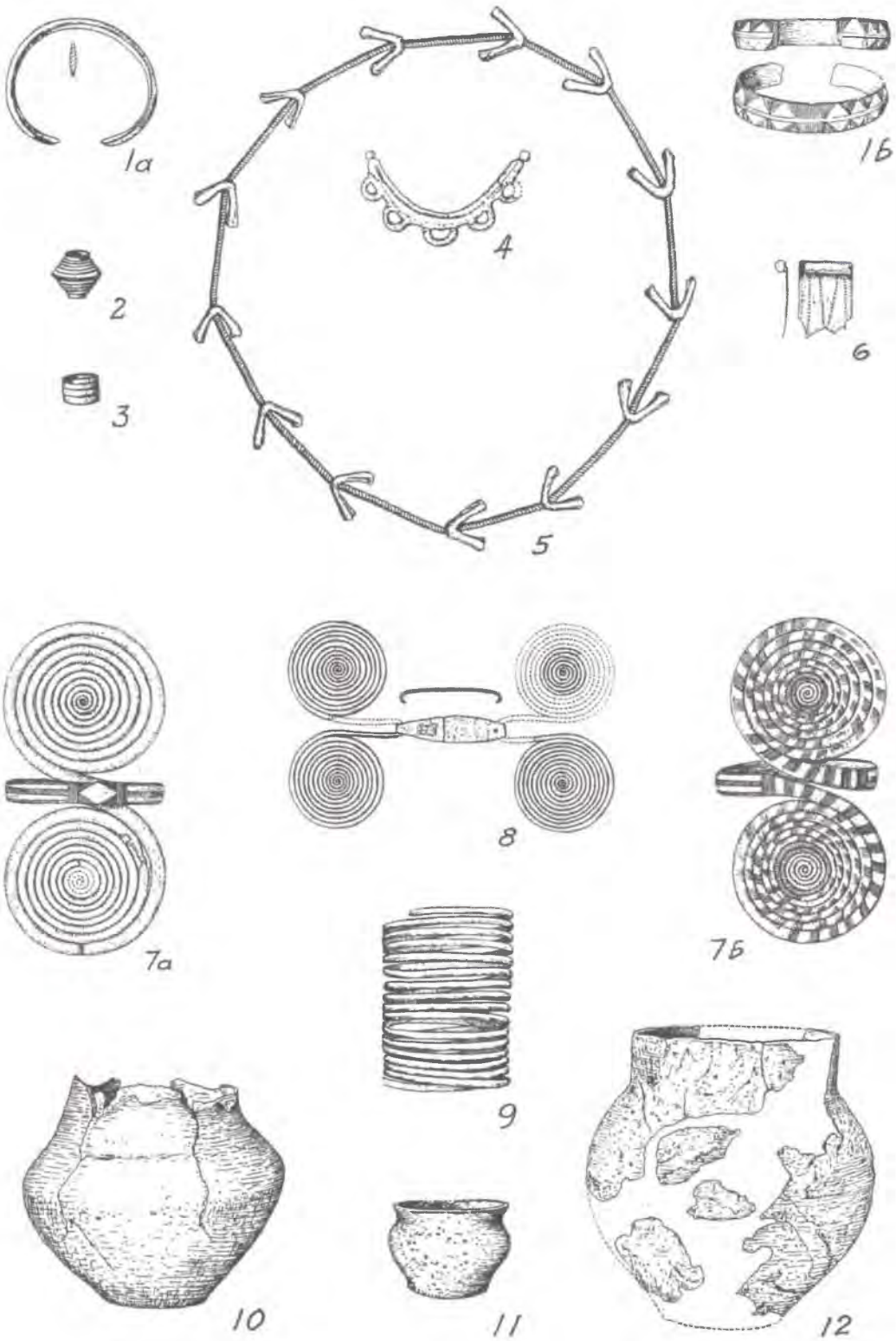


FIG. 282. Inhumation grave No. II from the cemetery of Trzebiatów (Treptow-Spinnkathen). **1,** bracelet; **2,** bronze bead; **3,** finger-ring; **4,** fragment of an ornament; **5,** necklace; **6,** fragment of a belt plate; **7,** bracelet with spiral ends, "Mecklenburg" type (viewed from two sides, *a* and *b*); **8,** ornament of two double spirals connected with a flat bow; **9,** spiral arm-ring; **10-12,** pots. Scale 1/3; pots 1/6. *After* Kersten, 1958.

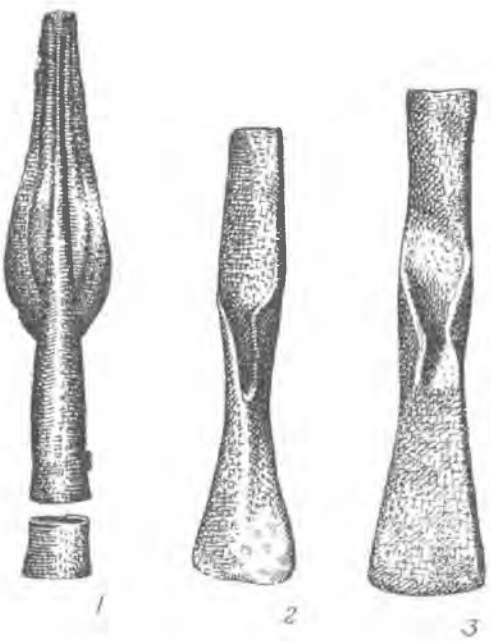


FIG. 283. Finds of Lusatian type in the lower Vistula Basin.
1, flame-shaped spearhead; **2,** palstave; **3,** median-winged axe.
Scale approx. 1/2. *After* Šturms, 1936a.

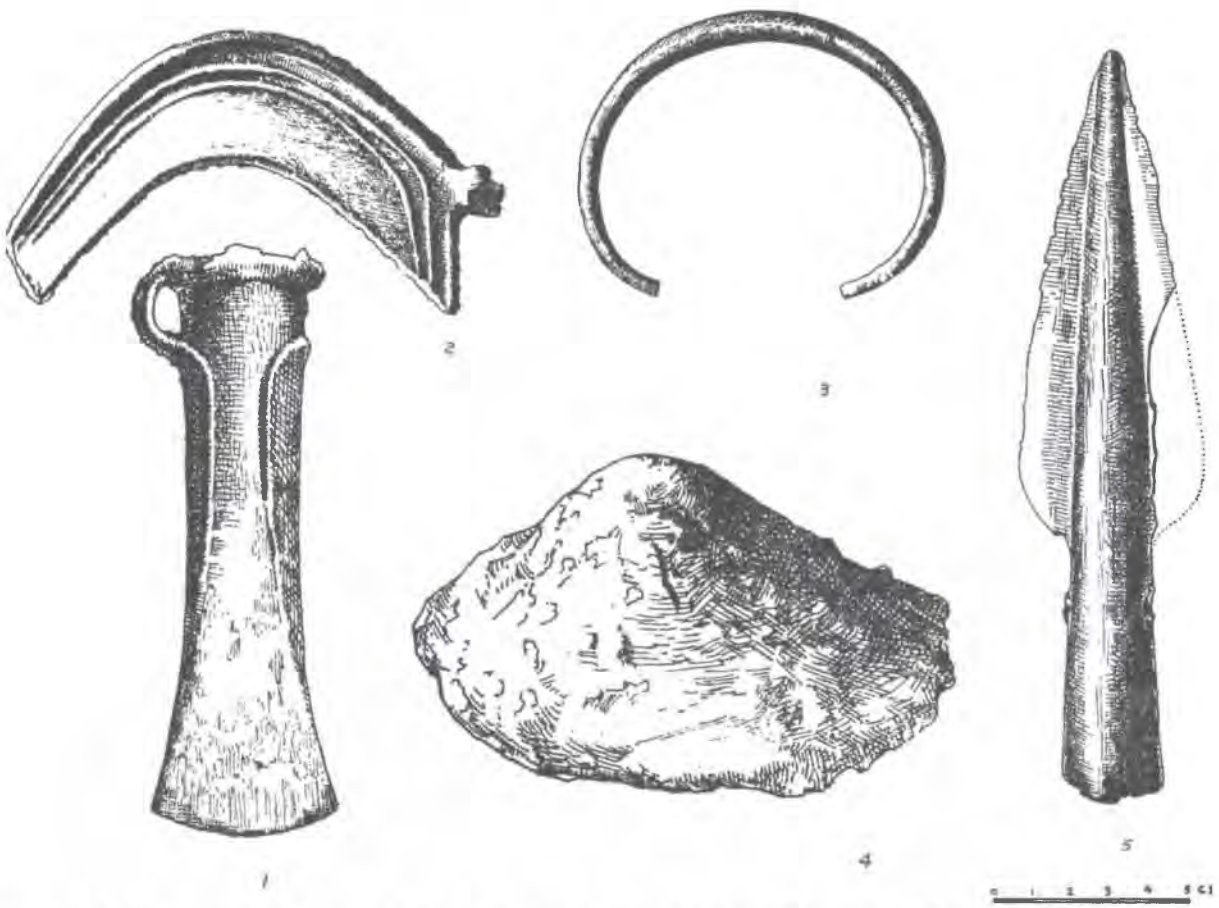


FIG. 284. **1,** socketed celt; **2,** button sickle; **3,** bracelet; **4,** copper ingot; and **5,** spearhead from the founder's hoard at Littausdorf, Samland. *After* Bezzenberger, 1904.

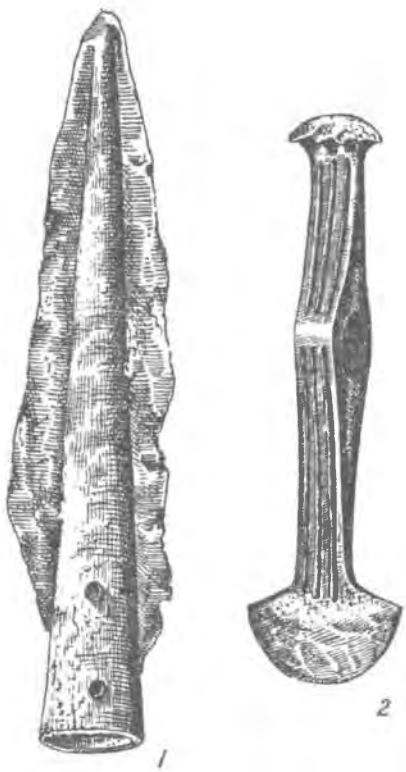


FIG. 285. **1,** spearhead and **2,** axe of southeastern Baltic type from a grave at Gedminas estate near Klaipėda (Memel), western Lithuania.
Axe 16.4 cm. long. *By courtesy* of J. Puzinas.

artifacts were similar to one another but not identical. Perhaps the founder stocked these specimens as raw material or with the intention of repairing them. Chemical analysis of the spearhead and sickle from the Littausdorf hoard gave the following composition: the spearhead, 79.9 per cent copper, 15.7 per cent tin, and 2.4 per cent nickel; the sickle, 78.17 per cent copper, 19.6 per cent tin, and 0.1 per cent iron.

The existence of local metallurgy is also indicated by the increased number of typically Baltic bronze objects. Battle-axes with an almost semicircular blade and a distinct butt-end (fig. 285, *2*) were distributed

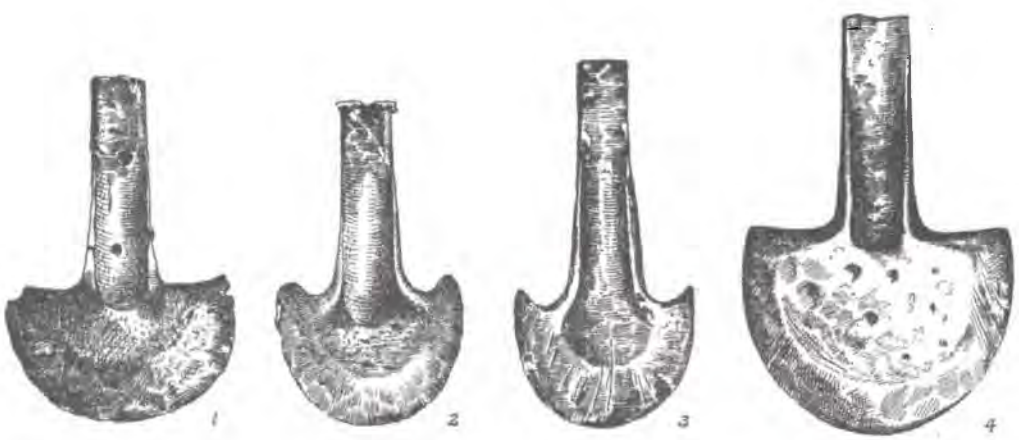


FIG. 286. Flanged axes of southeastern Baltic type. **1,** Ž. Panemune near Paezereliai, Lithuania; **2,** Tautusiai near Betygala; **3,** Ringuvėnai near Kursėnai, central Lithuania; **4,** Stalupėnai, Lithuania Minor, former East Prussia. Scale approx. 1/3.
1-3, *by courtesy* of Istorinis Muziejus, Kaunas; **4,** after *Altpreussen*, 1942.

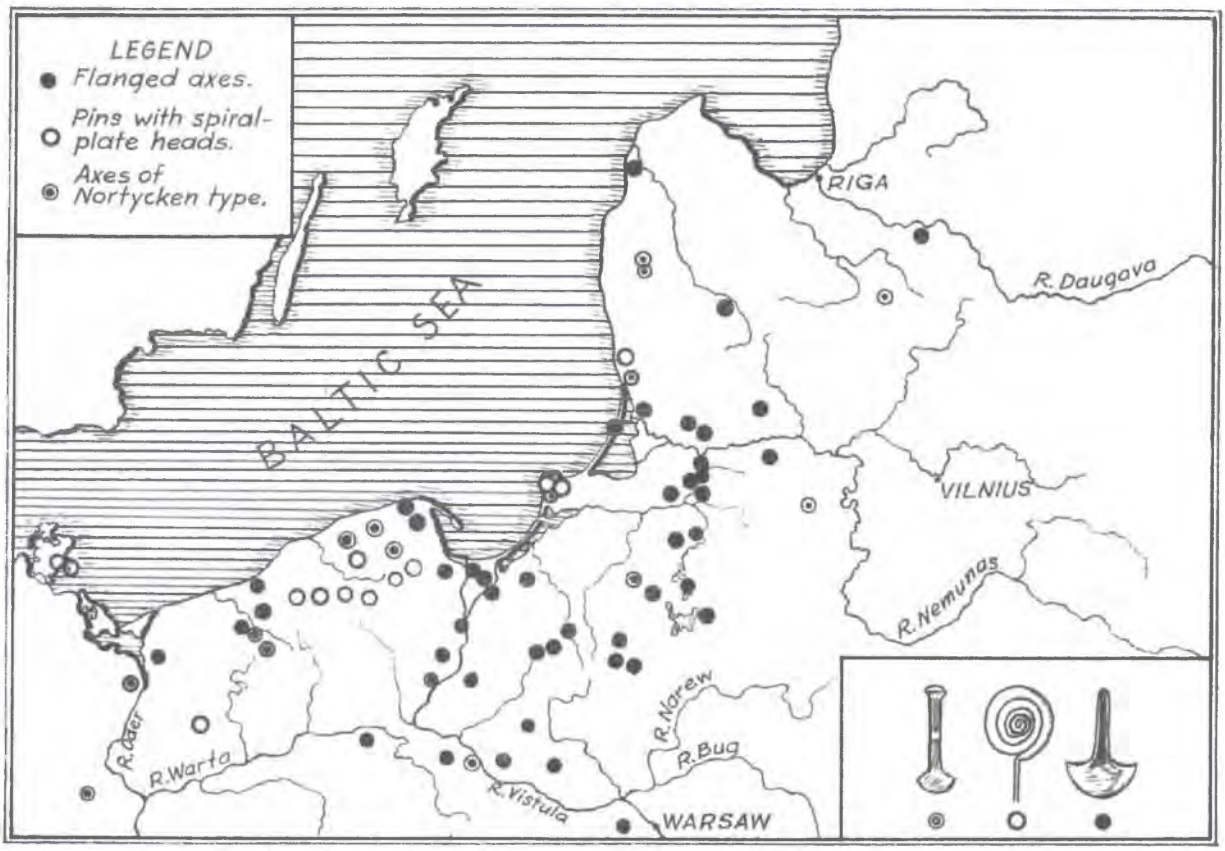


FIG. 287. Distribution of Baltic battle-axes, spiral-plate pins and flanged axes. *Based* on Kilian, 1939, with additions.

only over the southeastern Baltic area. Pins with a large spiral-plate head, pins with a widening cylindrical head, and flanged axes with the body concave between the butt-end and the edge and the flanges usually up to 1 cm high were also local types. Some of these axes had a semicircular or almost circular edge (fig. 286). The edges of many of these axes show evidence of having been sharpened. The seam around the sides of the axe indicates that axes were cast in two-valved molds. These axes are concentrated in Lithuania and East Prussia, their distribution extending southwards to the Włocławek-Warsaw area in Poland as does the distribution of pins with large spiral heads and long widening cylindrical heads, and Baltic battle-axes (fig. 287). The latter were exported to the western Baltic area; one flanged Baltic axe was found in Denmark (Smørunmovre, Smørum Sogen og Herred: Broholm 1944, pl. 15, *5*; *see* references for Part One: Study of Chronology).

Spectroanalyses of the flanged axes from western Lithuania and East Prussia show that they were made of copper alloyed with tin. Analysis has indicated 5-14 percent tin (Otto and Witter, 1952, p. 199; *see* references for Part One: Study of Chronology).

5. *The Late Baltic Bronze Age, ca. 1100 B.C. – ca. 750 B.C.*

Large barrow cemeteries, sometimes found in groups of more than hundred, are the chief source for our knowledge of the development of the Baltic culture throughout the latest Bronze Age period. The cemeteries were excavated chiefly during the last decades of the nineteenth century. Barrows were up to



FIG. 288. Late Baltic urn from a barrow at Ołuzna, district of Kołobrzeg, northern Poland. *After* Kostrzewski, 1958.

3 m in height, were surrounded by one or several stone rings, and had a central structure built of six or more rows of head-sized stones (pls. 84, 85). Inhumation ceased to be used for burial. Crematory urns with bulging bellies and cylindrical necks (fig. 288) were placed within the stone structure in the middle of the barrow (fig. 289). In addition to graves in urns, cremated bones were found in some instances placed in shallow pits or scattered over the fireplace at the bottom of the tumulus.

Many of the excavated barrows belong to several phases of the Late Bronze Age and Early Iron Age. Urn graves in stone cists overlie cremation graves without cists. In several of the large tumuli, hundreds of graves from various periods were found – good evidence of continuous population of the same locality.

In the tumulus at Workeim in the western part of East Prussia in the district of the former Heilsberg, present-day Lidzbark Warmiński, up to 600 graves were found. The barrow was, at the time of excavation, 1.8 m high and 13 m in diameter. The cremation graves lay closely one above the other. The grave inventory has shown that burials belonged to at least three or four chronological phases. The earliest and lowest cremation graves were simple piles of cremated bones without urns; those from the upper layers were urn burials. Pottery and bronze finds make clear that the barrow contained graves

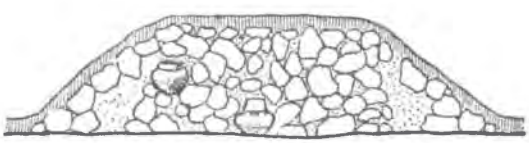


FIG. 289. A cross-section of a late Baltic barrow with urn graves. Cemetery of Warcimino-Wargowo, district of Słupsk, northern Poland. *After* Kostrzewski, 1958.

dating from the end of the second millennium B.C. to about the fourth or third centuries B.C. Pot forms are typical southeastern Baltic types (fig. 290). Among the bronze ornaments, bracelets were found made of thick round wire, and a fibula with two round discs at either end. This type of fibula occurs in assemblages of early Period V in the Northern Area Bronze Age; the bracelets belong to Period IV. The Workeim tumulus is a true mausoleum of a Late Bronze Age village community. Large tumuli with many graves have also been found in southwestern Latvia. In Rezne, district of Salaspils, southwest of Riga, on the ancient peninsula of the Daugava River, there were seven large tumuli preserved, two of which were excavated in 1933-1935. One mound (2 m high) contained over 300 burials (Šturms, 1950, pp. 1 ff.; *see* references for the Cultures in Northern Russia and the Northern Baltic Area; Vankina, 1952). Precise dating of the burials is impossible because of the scarcity of finds. However, in the lowest layer of the mound a heart-shaped arrowhead of flint was discovered close to an inhumed body; according to Šturms, the arrowhead may date from the classical Baltic period. The other burials, from the upper layers in Rezne, were cremated and then again inhumed. In one of the cremation graves, in a simple heap of burned bones without an urn, a spiral handle of a razor was discovered (similar to that in fig. 292, *2*) which may date from around 1000 B.C. or later (Period IV of Montelius' method). The datable objects make it possible to conclude that the rite of cremation penetrated the

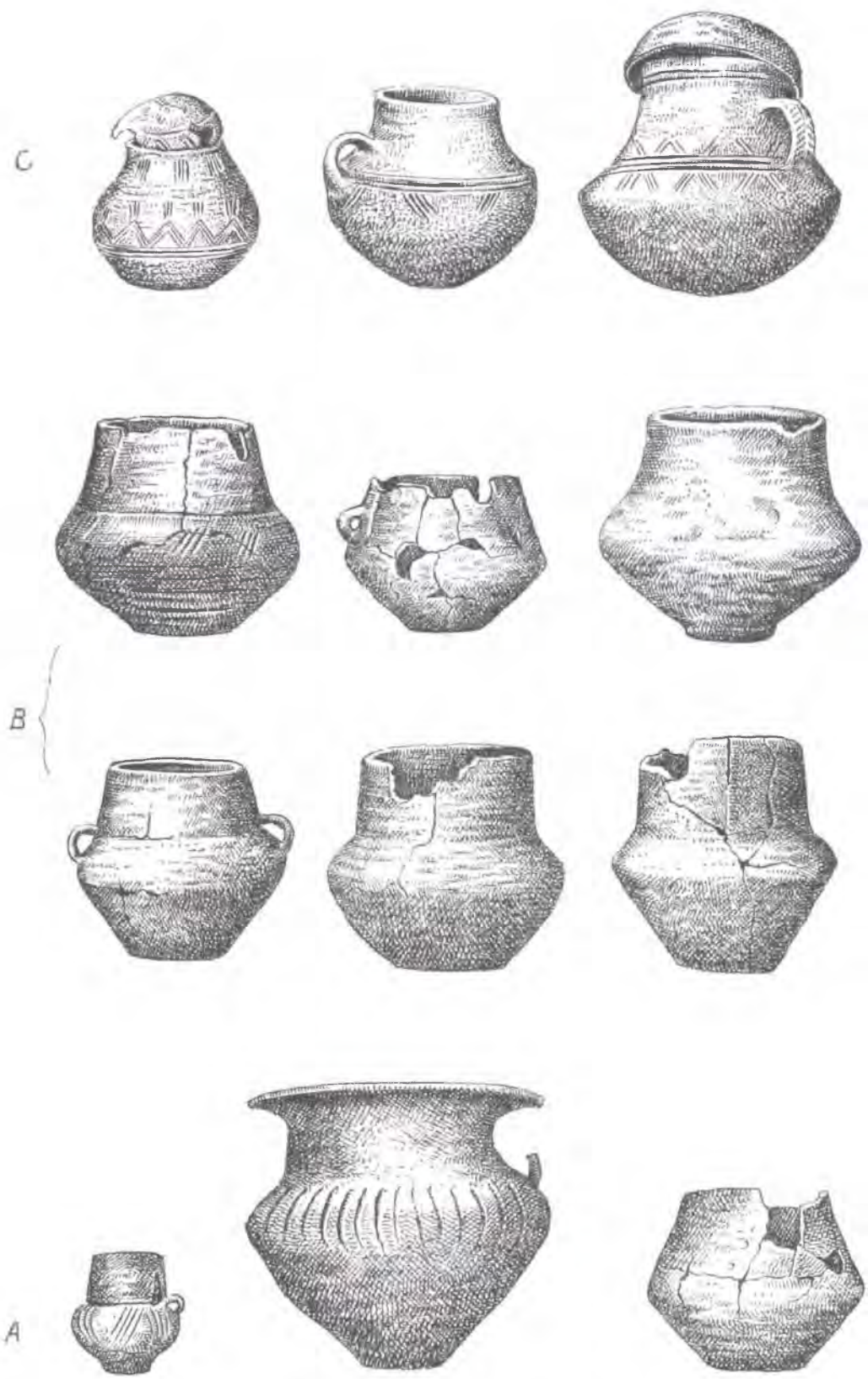


FIG. 290. Pots from various periods of Late Bronze and Early Iron Age. Workeim burial mound, East Prussia. *A*, end of the second or beginning of the first millennium *B.C.*; *B*, from the period *ca.* 900-600; *C*, *ca.* fourth-third centuries *B.C.* Scale 1/5-1/6. *Based on* Engel, 1935.

area north of the Daugava River and the southeastern Baltic area at the same time, probably not earlier than 1100 B.C. The cremated bones were placed neither in urns nor in stone cists, but in simple piles. Cremation graves in small stone cists were located above the simple cremation graves. In one of the cists a fragment of a bronze tweezer with embossed decoration was discovered. Later inhumation burials lay above the cremation graves in the stone cists, and thus, on the basis of stratigraphy, can be regarded as belonging to the Early Iron Age. Horse's teeth appeared in 128 locations. The horse was probably an important sacrificial animal.

Analogous stratigraphy of inhumation and cremation graves was also found in one of the tumuli in the cemetery of Kalniesi, central Latvia, excavated in 1948 (Vankina, 1952). Here the earliest burials were extended inhumations in stone cists placed in several layers one above the other. A bronze tutulus was found in one of the graves indicating an approximate contemporaneity with Classical II. Cremation graves, heaps, 20-50 cm in diameter, of burnt bones, formed a solid layer above the inhumation graves. In the barrow and close to the graves bones of horses and oxen were discovered.

Central European (Lusatian) influences persisted. In the lower Oder area, in the districts of Gryfice, Pyrzyce, Nowogard, Szczecin (Stettin), immediately east and west of the Oder, Lusatian graves and pottery were found, but eastern Pomerania continued to use Baltic burial rites. Kostrzewski's thesis that almost all Pomerania between the Oder and the Vistula area was occupied by the Lusatians (Kostrzewski, 1958), is certainly an exaggeration because he regards typical Baltic pottery and graves as Lusatian. Baltic limits in the west remained the same. The lower Oder area was under strong central European influence throughout the whole Bronze Age.

In eastern Poland and Volynia a group called "Ulvivok" (or "Ulwówek" in Polish) developed which can be regarded as a Baltic and Lusatian hybrid. A "Ulvivok" assemblage of finds, so called from the cemetery of Ulvivok near Sokal, northwestern Ukraine (Sulimirski, 1931b), has been found in about ten cemeteries and habitation sites. In the cemeteries inhumation rites predominated. The dead were laid in rows in deep pits in the extended position. But along with the inhumations, cremations occur. In the cemetery of Ulvivok, among the inhumation graves, some heaps of cremated bones without urns were discovered (Sulimirski, 1931b, p. 110; *see* references for the North Carpathian Culture). Pot forms

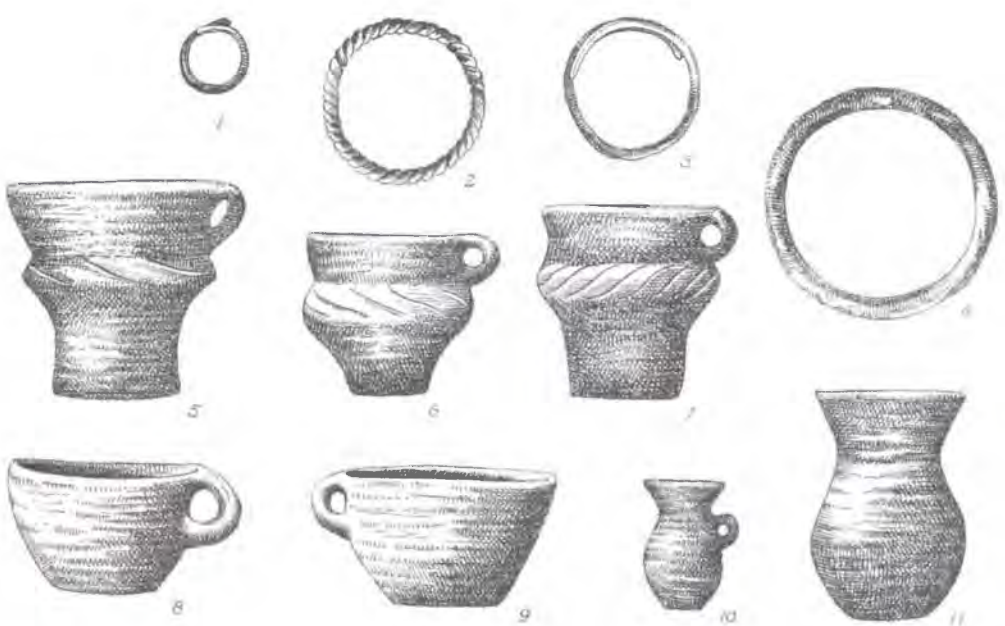


FIG. 291. **1**, finger-ring; **2-3**, bracelets; **4**, necklet; and **5-11**, pottery from the Ulvivok (Ulwówek) cemetery near Sokal, northwestern Ukraine. Scale: bronzes approx. 1/3; pots approx. 1/5. *After* Sulimirski, 1931.

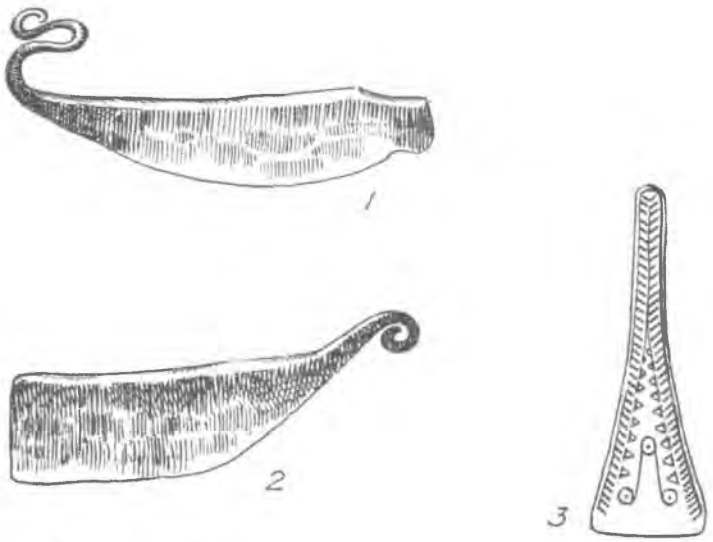


FIG. 292. Razors and tweezer from late Baltic barrows: **1**, Gapowo near Kartuzy; **2, 3**, Binowo near Gryfino, northern Poland. Scale: **1, 2**, 1/2; **3**, 2/3. *After* Kostrzewski, 1958.

comprise: vessels with a handle, having cylindrical lower parts and decorated in the middle with horizontal lines or diagonal flutings (fig. 291, *5-7*), amphorae with small handles and high cylindrical necks, S-profiled or tulip-shaped beakers (fig. 291, *10, 11*), large wide-mouthed pots, and simple cups with a handle (fig. 291, *8, 9*). Among the bronze objects found in graves were closed neck-rings round in cross-section (fig. 291, *4*), bracelets, and finger-rings with overlapping ends (fig. 291, *1-3*).

Communication with the western Baltic area continued: fibulae, tweezers, and razors show common or similar forms (fig. 292). Among the imported artifacts attributable to this phase is a flange-hilted sword with a narrow hilt, an isolated find, from Atkamp, district of Reszel (Rössel) in northern Poland (fig. 293). An almost identical sword was discovered in the site of Klues, district of Güstrow in Mecklenburg (Hundt, 1955, fig. 3, *1-3*; *see* references for the Study of Chronology).

The Baltic people developed their own type of socketed celt; a fairly large number of these have been discovered in East Prussia, northern Poland, Lithuania, Byelo-Russia, and southern Latvia. Many specimens had a distinctive rounded socket and were decorated with vertical, diagonal, and zigzag strokes (fig. 294). Handles on some celts were attached as if they were holding on to the celt with outstretched fingers (pl. 86). Of the several hundred celts of this Baltic type, a considerable part come from hoards. In northeastern Poland near Białystok, at Kalinówka Kościelna, a hoard of 49 socketed celts, one miniature hammer-axe with ribbed shaft-tube, and two massive bracelets round in cross-section, was found in 1910 in a cylindrical pot (Kostrzewski, 1929): several celts in this hoard were similar to the type current in Silesian and East Prussian hoards, but the bulk were locally produced. The main types are shown in figure 295. Similar types of celts were also found in the hoard of Česai near Merkinė in southern Lithuania (Szukiewicz, 1914, p. 74, fig. 53), and in the hoard of Münsterwalde near Trzew (Dirschau) on the lower Vistula (Sprockhoff, 1950, p. 125, pl. 1, *8-11*). Massive arm-rings frequently appear in hoards of Period IV in Northern Area. The miniature cult-axe also seems to be a locally developed form. Another almost identical cult-axe was found in Sausgarben near Kętrzyn (Rastenburg) in former East Prussia (Engel, 1935, pl. 106, *c*). Along with the metal ones, stone axes for cult purposes were still commonly used. Some of them are imitiations of the metal axes. Their symbolic role is seen from the fact that they were very carefully placed in graves, frequently in a pot.

A résumé of the chronological classification of the Baltic culture and of the synchronous cultures in central and northwestern Europe is given in table III.



FIG. 293. Sword from Atkamp, district of Reszel (Rössel), northern Poland (former East Prussia). Scale 1/3. *After* Engel, 1935.

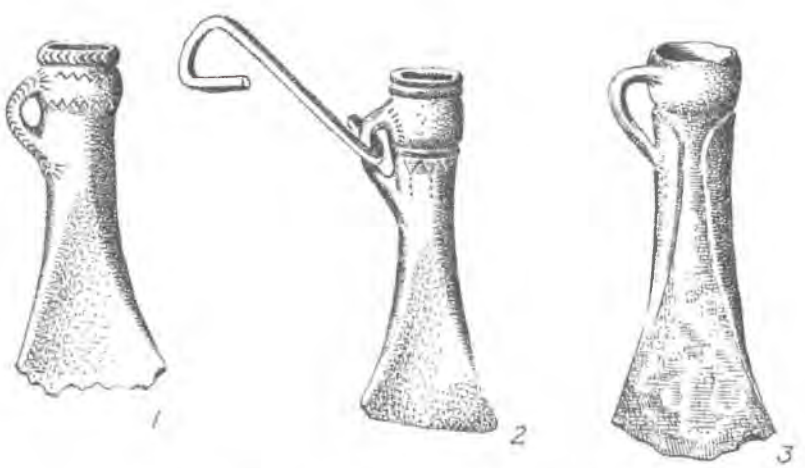


FIG. 294. Baltic socketed celts. **1,** Ilknikiai near Fischhausen, Samland; **2,** Birkenhof near Fischhausen; **3,** Liudvinavas near Marijampolė, southern Lithuania. Scale approx. 1/4. *After* Engel, 1935.

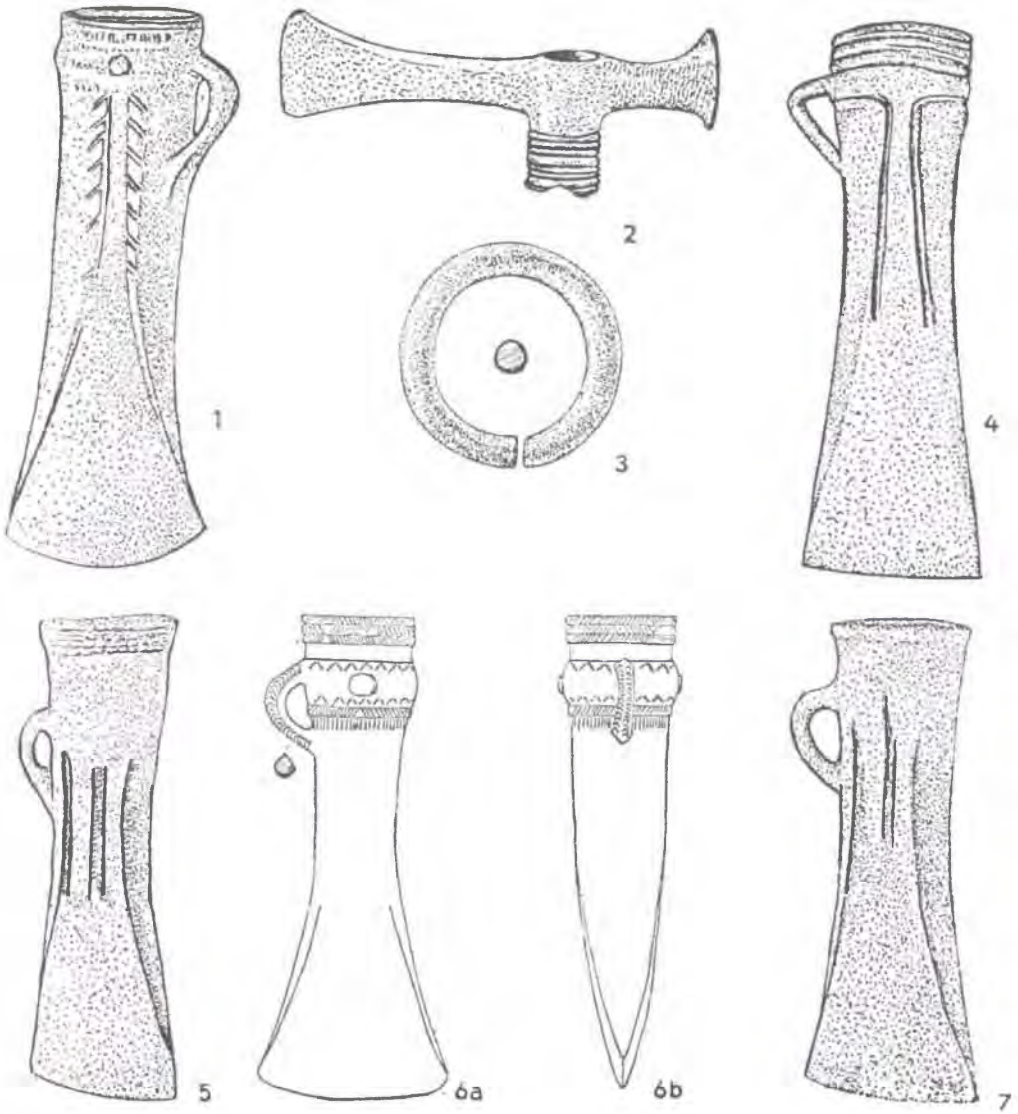


FIG. 295. **1, 4-7,** socketed celts; **2,** miniature bronze hammer-axe; and **3,** bracelet from the hoard of Kalinówka Koscielna district of Białystok, northern Poland. Scale 1/2. *After* Sprockhoff, 1950.

Up to the sixth century B.C. iron in the Baltic area was extremely rare, and the general cultural level continued to be almost purely Bronze Age in character, but the eighth century was for the amber gatherers a period of orientalization, as it was in central Europe. In addition to bronze horse-gear consisting of bridlebits, cheekpieces, and round ornamental plates, transmitted to the Baltic area by the Lusatians, entirely new forms such as large racquet pins, belt hooks ending in two spiral plates, and ring and wheel-shaped pendants appeared, the prototypes of which lie in the Koban culture. The amber trade, which during the late Baltic Bronze Age seems to have been less intensive, at the end of the eighth century B.C. revived remarkably. A great many amber beads appear in the graves of Samland and in the southeast as far as Ossetia and Georgia in the Caucasus. During the seventh and sixth centuries B.C. the amber trade increased even more, with a very good market in the Alpine region, Italy, and the eastern Adriatic coast. The Baltic culture thus became tied with the Hallstatt and Villanova cultures, and many southern elements reached the Baltic coasts. House-urns and face-urns were introduced, the latter becoming a dominating feature in eastern Pomerania and the lower Vistula area in the sixth and

TABLE III

Chronological position of the Baltic culture in comparison to central European and Northern Area Bronze Age.

Approximate dates	*Periods*	*Baltic culture Type sites*	*Central European culture*	*Northern Area Bronze Age* (M, Montelius', H. Hachmann's classification)
ca. 750 B. C.				
	LATE BALTIC BRONZE AGE / LATE URNFIELD	Workeim (fig. 290, *A*, *B*) Kalinówka Kościelna (fig. 295)	Urnfield III-V	M IV
ca. 1100 B. C.				
	CLASSICAL BALTIC BRONZE AGE / EARLY URNFIELD	Rantau II (fig. 280) Rantau I (figs. 273, 274)	Urnfield II Urnfield I	M III
ca. 1250 B. C.				
	MIDDLE BRONZE AGE / TUMULUS	Łubna (figs. 267; 270, 271) Wojdal (figs. 35, *B*; 264)	Late (Houštka) Middle (Třebivlice) Early (Koszider)	M II H IV H III
ca. 1450 B. C.				M I
	EARLY BRONZE AGE	Iwno *et al.* (figs. 258; 259) Kończewice (fig. 253, *2*)	Late Únětice Classical Únětice	H II H I
1700/1600 B. C.				
	CORDED OR FORMATIVE	Mierzanowice III (figs. 250, II; 251) Mierzanowice II (fig. 250, I) Rzucewo (fig. 245; pl. 79)	Early Únětice Corded	
ca. 2000 B. C.				

particularly in the fifth centuries B.C., whence comes the name "Face-urn culture". In the fourth century B.C. it was transformed into the "Pot-covered urn culture", which spread in that century over the whole Vistula basin and into Volynia until its southward and eastward drive was stopped by the Celtic invasion in the third century B.C.

Throughout the early Iron Age centuries, the culture of the area between Pomerania and Latvia retained its individualistic features in the arrangement of small fortified villages on hills, on islands, or on promontories, in burial in urns within stone cists in flat graves or in tumuli within several stone rings, and in geometrically decorated pear-shaped pots. The process of differentiation into regional groups proceeded more rapidly. In the second century A.D. Ptolemy places two western Baltic tribes, the *Soudinoi* and *Galindai*, on his map, the same ancient Prussian tribes which, among other tribes, are mentioned by chroniclers of the fourteenth century A.D. This indicates that the formation of Prussian tribes had its roots deep in the pre-Christian centuries. To Tacitus in 98 A.D. the amber gatherers were "Aestiorum gentes", living east of the Germanic tribes, east of the Goths who infiltrated eastern Pomerania about a century before Christ. The name *Aisti* (*Aestii*) was probably a general name applied to Prussian tribes, one which reappears many times in later centuries.

6. *The Late Bronze Age in the land of the eastern Balts*

The above survey of the Late Bronze Age dealt with the western branch of the Baltic bloc, which, as it is seen from the continuity of the same culture during the Iron Age, belonged to the ancestors of the Baltis Prussians and their kin tribes in the coastal area. In the eastern zone, in the upland and forested areac from eastern Lithuania and Latvia on the west to the upper Oka and upper Donets basins in southern central Russia and the northern corner of the Ukraine in the east, the culture developed in a more conservative way. Here there was no amber to exchange for metal objects, nor were there any other stimuli from the central European realm or the Mediterranean area. The eastern branch of the Baltic culture was in contact with the North Pontic culture during the Early Bronze Age and later with the Timber-grave culture. In the south it bordered on the North Carpathian and in the north on the Textile Pottery cultures.

No Bronze Age sites had been found in the above mentioned area up to the 1950's. In the course of the past decade excavations along the valleys of the Desna, Sejm, upper Sula, Vorskla, upper Donets, and Oskol rivers have brought to light about 30 habitation sites. The largest group belongs to the latest stage of the Bronze Age, *ca.* the ninth and eighth centuries B.C., and is labeled Bondarikha after a habitation site on the bank of the upper Donets near Izjum discovered in 1951 (Telegin, 1956). The earlier Late Bronze Age sites are known as the Studenok or Malye Budki type (Telegin, 1959; Illins'ka, 1957). Typologically these Late Bronze Age sites are indubitable successors to the Middle Bronze Age Baltic culture which in eastern Poland and northern Volynia carries the name Trzciniec, in the Desna basin known as Sosnitskaja (fig. 269). The pottery from these sites, however, shows some persisting decorative motifs, impressions of pits and dentate stamps, which go back to the Neolithic Pit-marked Pottery. The habitation sites, several of which held remains of above-ground and semisubterranean houses, were located on river terraces, never immediately at the riverbank. In dwelling areas appeared potsherds, flint sickles, stone querns, rubbing stones, pestles, crucibles, stone and clay molds, socketed celts, bones of cattle, horses, sheep, goats, and pigs.

The earliest evidence of local metallurgy comes to light in the Studenok site located on the bank of the upper Donets, south of Izjum. Pieces of a crucible, a mold for a socketed celt with one loop, and a fragment of a bronze cylinder were discovered in the house area of this site, in addition to flint sickles and pots, mostly bulging beakers, decorated over the upper part by bands of incisions or impressions of diagonal lines, pits, or cords. The presence of molds for socketed celts with one loop, which is an

earlier variety than that found in the Bondarikha sites, allows one to place the Studenok phase somewhere around 1000 B.C. or earlier. Similar celts belong to the Sosnovaja Maza phase of the late Timber-grave culture. The origin of metallurgy in sites of a Studenok character was due most probably to the influence of the Timber-grave people in the lower Dnieper region.

Sites of the Bondarikha type number now about 20, excavated on the terraces of the upper Donets, Oskol, Vorskla, Sula, and Desna rivers (Il'inskaja, 1961). Among the potsherds and stone implements in the rectangular house area of the Bondarikha site, socketed celts with two loops and a mid-rib and stone molds for them appeared (fig. 196, *4*, *5*). Similar socketed celts were frequent in the latest Timber-grave phase (fig. 401, *2*, *3*), but the Bondarikha ones had a characteristic mid-rib which does not occur on Timber-grave celts. An iron awl was found in a Bondarikha site, and an iron knife appeared in one of the latest sites in the Bondarikha series located on the Oskol River near the town of Oskol. This site yielded also a clay mold for chisels and the blade of a bronze dagger. The latter has close analogies in the latest Timber-grave sites (cf. fig. 404, *1*, *2*).

Bondarikha pots were usually beakers, with a mouth 20-27 cm. in diameter, a bulging belly, and a flat base. Some of the large pots were crudely fashioned, but the small vessels were particularly well shaped and had thin walls. The clay was tempered with sand and the surface was either polished by brushing or was smooth. Decoration of pots was confined to the upper part and consisted mainly of pit impressions in horizontal bands or in triangular patterns made by a sharp instrument (fig. 296, *7*, *8*, *11*). There were also bands of horizontal incisions combined with dots (fig. 296, *10*) and horizontal ridges (fig. 296, *12*) which recall the Early and Middle Bronze Age style.

The Bondarikha culture continued into the Early Iron Age as is evident from several hundred hilltop villages in the Desna and upper Oka basins. Its southern fringes along the Vorskla River were taken over by the Chernolesska people, the descendants of the North Carpathian Bronze Age, in the eighth or seventh century B.C., and in the upper Donets, Psla, Sula, and Sejm area Scythian monuments appeared in the sixth century B.C. During the Early Iron Age Bondarikha became the "Jukhnovo culture", named after a fortified hilltop village on the Desna, or the "Plain Pottery culture", as its pots were frequently smooth-surfaced and undecorated or had ornaments only over the upper part, similar to those of the Bondarikha stage. In the stratified habitation sites on the Desna River, the layers with Bondarikha deposits were superimposed with Jukhnovo or Plain Pottery layers (Levenok, 1957). West of this culture, in the upper Dnieper basin in northern Volynia and in southern Byelo-Russia, a closely related cultural group arose, known by the name Milograd. The Brushed Pottery culture spread, throughout the rest of Byelo-Russia and eastern Lithuania, distinguishable from Plain Pottery only by brushed surfaces. All three groups, Plain Pottery or Jukhnovo, Milograd, and Brushed Pottery, are parts or variants of one cultural entity. Many of their small fortified villages arranged on riverbanks, promontories, or on elevations on the lake shores were inhabited for many consecutive centuries. The uninterrupted cultural continuum here can be followed up to Roman and Mediaeval times and to the beginning of the eastern Slav expansion into Russia between the fifth and ninth centuries A.D. (Gimbutas, 1963 a and b).

The distribution of thousands of river names of Baltic origin testifies to the spread of eastern Baltic culture during the Bronze and Iron Ages into Byelo-Russia, northern Volynia, the northern fringes of the Ukraine, and western Great Russia. These river names have relatives in East Prussia, Lithuania, and Latvia or an etymology explicable by Baltic words. The Baltic character of present Byelo-Russia and western Great Russia has been suspected by linguists and historians since the end of the nineteenth century. Systematic linguistic research was started by the Lithuanian linguist Būga who in 1913 and 1924 published his studies on the Baltic origin of hundreds of river names in Byelo-Russia, in the districts of Minsk, Polotsk, and Vitebsk (Būga, 1924). In 1932 a similar study was made by Vasmer, who found Baltic river names in the districts of Smolensk, Tula, Kaluga, Moscow, and Chernigov (Vasmer, 1932). Even the name *Volga* is probably of Baltic origin. Trubetzkoy, in his lectures in the 1920's and

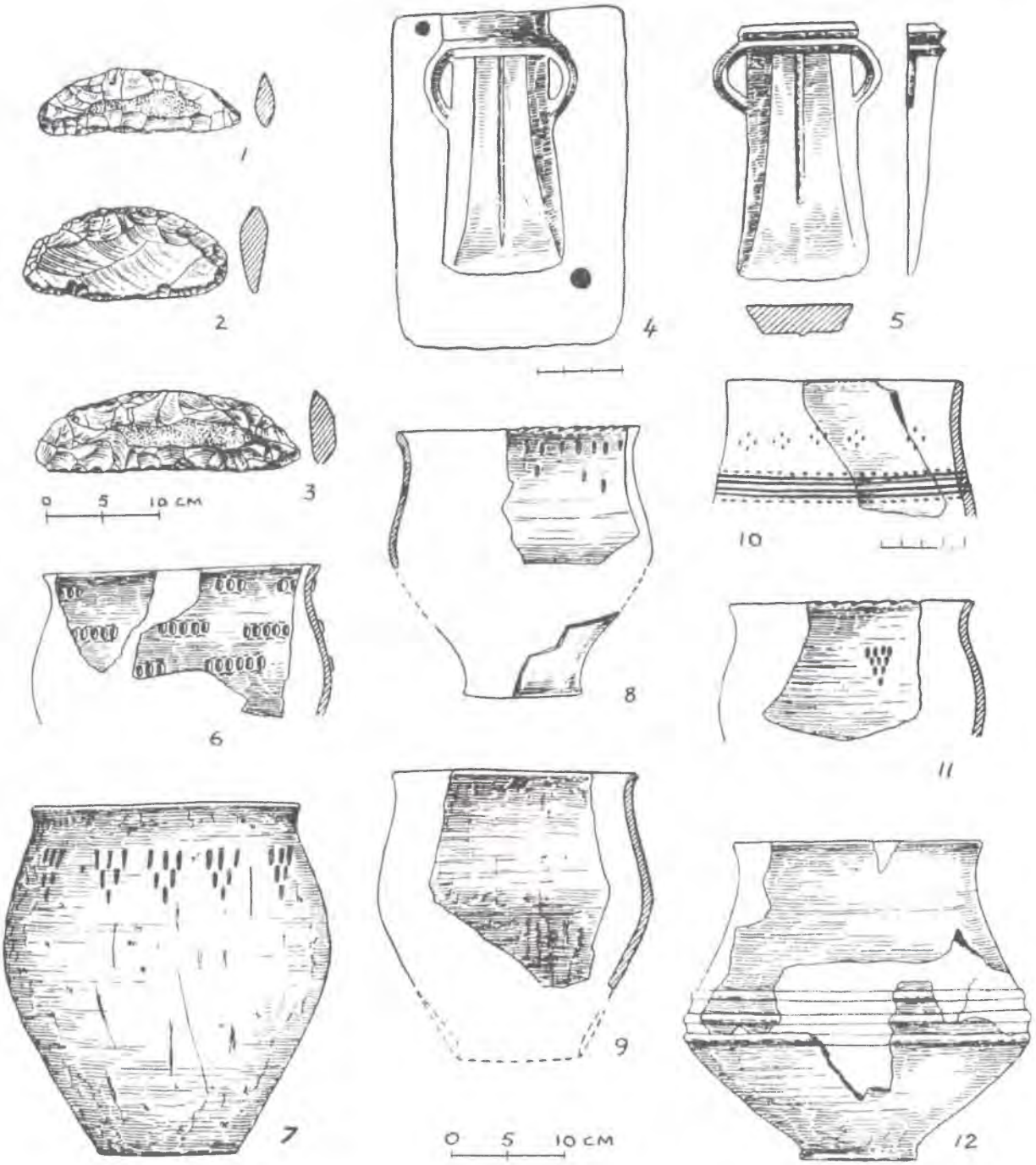


FIG. 296. **1-3,** flint sickles; **4,** stone mold for a socketed celt; **5,** socketed celt; **6-12,** pots from the end Bronze Age habitation sites of Bondarikha, south of Izium **(1-5, 8, 9)** and Oskol on Oskol River **(6, 7, 10-12),** northern Ukraine. *After* Il'linskaja, 1961.

1930's at the University of Vienna, proposed that the etymology of *Volga* is connected with the Baltic *Jilga,* the "long river". Before it became *Volga* this name went through many stages: *volga*<**vlga* <**vulga*<**julga*<**jilga* (oral information from Roman Jakobson). Several other Baltic river names in western Great Russia were added to the list later on by the Polish linguists Rozwadowski and Lehr-Spławiński. Finally, Toporov and Trubachev examined all the river names of the Dnieper basin finding

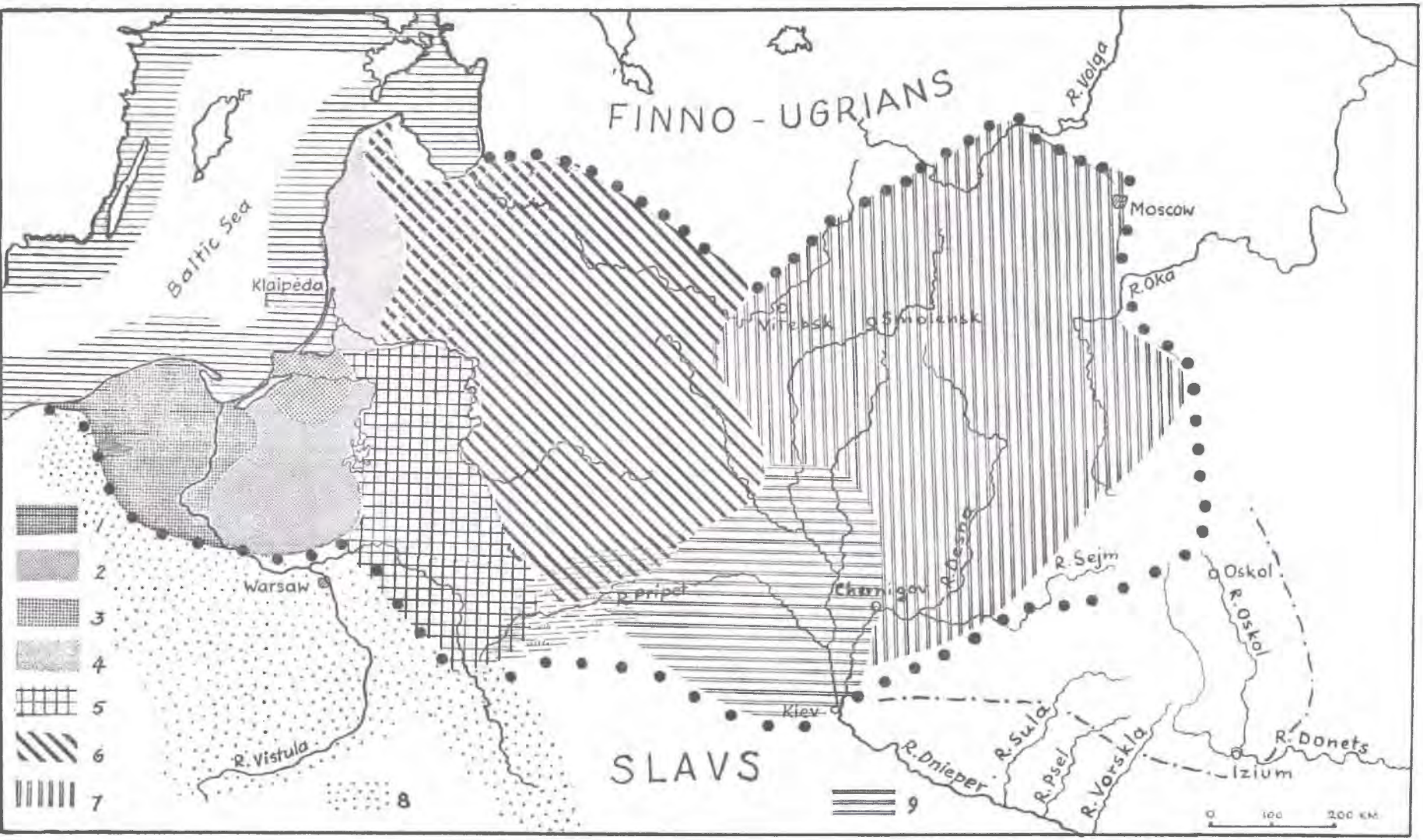


FIG. 297. The Baltic culture at the end of the Bronze Age and in the Early Iron Age. ● ● ●, the area of the Baltic river names; – . – . –, distribution of the end Bronze Age Bondarikha group; **1-9**, Early Iron Age groups: **1**, face-urn group in eastern Pomerania and the lower Vistula area; **2**, central Prussian group; **3**, Samland group; **4**, Curonian group in western Lithuania and Latvia; **5**, Sudovian group; **6**, Brushed Pottery group; **7**, Plain Pottery or Jukhnovo group; **8**, expansion of Pot-covered urn group in the fourth century *B.C.*, successor to the face-urn group (**1**); **9**, Milograd group.

there over a thousand names held to be of Baltic origin (Toporov and Trubachev, 1962). The distribution of Baltic-speaking peoples from eastern Pomerania and the Vistula basin in Poland to the upper Oka in Russia is now linguistically well proven and this distribution agrees with the spread of the Bronze and Iron Age cultures (fig. 297).

At the end of the eighth century B.C. the Scythians succeeded in conquering the Cimmerians; a great part of the Chernolesska culture in the middle Dnieper region and Podolia, dating from the eighth to sixth centuries B.C., fell under the rule or strong influences of the Scythians, while the northern tribes mostly remained outside the orbit of the Scythian realm. However, as the Scythians became involved in war against the invading Persians in 513 B.C., the northern tribes were also disturbed. Thanks to these wars which Herodotus describes in Book IV of his history written about 450 B.C., we have the earliest surviving written records concerning the people living north of Scythia at the end of the sixth century B.C. Among other tribes, Herodotus mentions the Neuri. He writes that the Neuri dwell beyond the "Scythian farmers" who inhabit the land, at the distance of three days' journey toward the east and 11 days' voyage up the Dnieper starting from the place Hylae on the Black Sea. From an archaeological point of view, the lands thus assumed to be occupied by the Scythian farmers approximately coincide with the distribution of the Chernolesska culture, which while strongly influenced by the Scythians shows a continuity with the preceding culture of the same area, the Late Bronze Age Bilogrudivka and Middle Bronze Age Komarov, described in the following chapter. The Neuri are considered by Herodotus as a separate people living north of the Scythian farmers, the probable early Slavs, and he places them next to Androphagi, the man-eaters, who are identified with the Finno-Ugrian Mordvins living in central Russia east of the lower Oka. The name "Androphagi" is a Greek translation of the Iranian name for the Mordvins, *mardxvār*, *mard* – man, *xvār* – devour, deciphered at the beginning of this century by Tomashek in his lectures at the University of Vienna (Shakhmatov, 1910-11). Hence, the Neuri are located by Herodotus north of the Slavs and west of the Mordvins and in the area which coincides with the distribution of the Bondarikha-Jukhnovo or Plain Pottery group.

From all what we hear from Herodotus and from what we know from linguistics and archaeology, it can be concluded that the Neuri are the earliest Balts known to written history. Their name very likely relates only to the eastern branch of the large Baltic group and best coincides with the spread of the Jukhnovo or Plain Pottery group, the successor of Bondarikha, between the upper Dnieper, upper Dvina, upper Oka, and upper Donets basins.

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VII

THE NORTH CARPATHIAN CULTURE

The North Carpathian culture is another group of Kurgan origin located between the Baltic culture, the Central European Lusatian group, the eastern Hungarian-western Transylvanian Otomani, the Monteoru culture, and the North Pontic Cimmerian culture. Its geographical situation, inter-cultural relations, continuity of development throughout the Bronze Age, and linguistic data – the spread of the oldest Slavic place names and relations between the Slavic and Baltic, Illyrian, Phrygian, Dacian, and Iranian languages – allow us to assume that the North Carpathian Bronze Age culture was very probably a proto- or early Slavic culture.

The problem of the origin of the Slavs, as reflected in the literature of the past 30 to 40 years, appears as perhaps one of the most debated issues in all the studies of Indo-European groups in Europe. The principal reason for this debate is that research has taken an unnecessary sidetrack by attempting to identify the central European Lusatian group as proto- or early Slavic. This has caused great confusion, both from the linguistic and from the archaeological point of view.

Lubor Niederle, the author of the monumental work *Slovánské Starožitnosti* (Slavic Antiquities) (1902), placed the earliest settlements of the Slavs or proto-Slavs in the middle Dnieper basin at the mouths of the Sozh, Desna, and Sula rivers (the left tributaries of the Dnieper), along the lower Pripet, along the Teterev and Ros' rivers (the right tributaries of the middle Dnieper), in the area of the upper Southern Bug (Boh), the upper and middle Dniester, the upper Prut in Podolia and the Siret in northern Moldavia and Bucovina, at the sources of the Vistula, and on the tributaries of the upper Vistula, the Wieprz, San, Wiślok, Dunajec, and Poprad. The distribution of the Bronze Age culture north of the Carpathian mountains (fig. 298) agrees almost completely with the area defined by Niederle as proto-Slavic on the basis of the earliest Slavic river and place names.

The term North Carpathian best indicates the geographic position of this cultural group. It embraces southeastern Poland, northeastern Slovakia, Podolia, Bucovina, and northern Moldavia. Its eastern limits are the area between the forest steppe and steppe belts in the northwestern Ukraine. The sites were chiefly spread over the eastern Beskid and Volyno-Podolian uplands, from 200 to 400 m above sea level. The northern boundary was formed by the Pripet lowlands in Volynia.

Metal workers were very much dependent on the western Carpathian metallurgical center. The culture did not give an individual character to its metal artifacts. Almost all forms of bronze weapons, tools, and ornaments are either imports or imitations of types from the south. This culture was not rich in mineral resources; neither copper nor tin ores were found in the area. These rather conservative people were agriculturalists and stockbreeders as well as hunters, fishers, and food collectors. Hence the stone and bone industries retained certain features from the end of the Neolithic to the Iron Age. Stone axes with perforations, for example, were used far into the Late Bronze Age. Flint sickles were the most typical tools in each chronological phase. Flint arrowheads, probably used for hunting small forest fauna, also continued throughout the Bronze Age.

The North Carpathian people during the Early and Middle Bronze Age buried their dead in low barrows, in stone cists, or in house-graves of other sorts with or without stone constructions, and during the Late Bronze Age in flat graves. Inhumation was the predominant rite, but cremation graves appear sporadically along with inhumation graves.

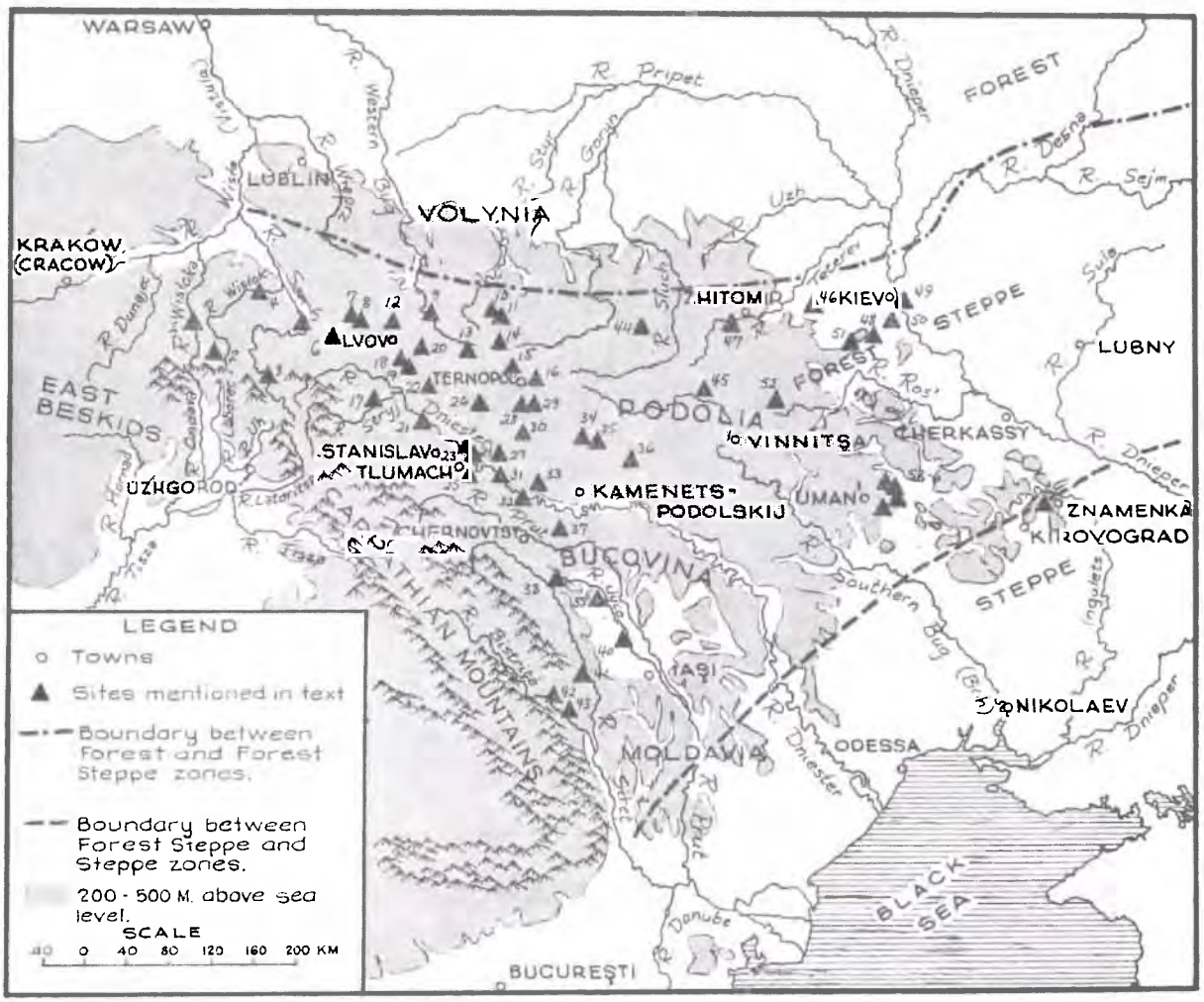


FIG. 298. Distribution of the North Carpathian culture.

Key to Fig. 298:

1. Jaworze Dolne hoard, Middle Bronze Age
2. Jaslo hoard, Middle Bronze Age
3. Stefkowa hoard, Middle Bronze Age
4. Kanczuga hoard, early Late Bronze Age
5. Maczkówka hoard, Late Bronze Age
6. Balice cemetery, Early Bronze Age
7. Lukawica cemetery, North Carpathian Corded
8. Brzezinki cemetery, North Carpathian Corded
9. Rusilov cemetery, Early Bronze Age
10. Vysotskoe cemetery, Late Bronze Age and Early Iron Age
11. Jasionov cemetery, Early Iron Age
12. Krekhov hoard, Late Bronze Age
13. Poczapy cemetery, Early Bronze Age
14. Goncharivka cemetery, Late Bronze Age
15. Popovtsy cemetery, Early Bronze Age
16. Ternopol cemetery, Late Bronze Age
17. Kolpiec cemetery, Early Bronze Age
18. Koropuzh cemetery near Rudki, Corded
19. Niedzieliska hoard, Late Bronze Age
20. Sarniki cemetery, Early Bronze Age
21. Oleshov hoard, Late Bronze Age
22. Komarov cemetery, Middle Bronze Age (Classical)
23. Bukivna (Bukowna) cemetery, Early Bronze Age
24. Jezierzany hoard, Late Bronze Age
25. Gruszka hoard, Late Bronze Age
26. Nahirjanka and Shubenitsja cemeteries, Early Bronze Age
27. Beremljany cemetery, Middle Bronze Age
28. Kachanovka cemetery, Late Corded, Early Bronze Age
29. Ostapovo cemetery, Early Bronze Age
30. Loshnev cemetery, Late Bronze Age
31. Bilopotok (Bilyj Potok) cemetery, Early Bronze Age
33. Novosilka Kostjukova cemetery, Late Bronze Age; Horodnitsa cemetery, end Early Bronze Age or beginning Middle Bronze Age
32. Zhezhava, Middle Bronze Age find and Kamionka Wielka hoard, Late Bronze Age
34. Chorostkiv cemetery, Early Bronze Age
35. Surmychi cemetery, Early Bronze Age
36. Kuzminchik cemetery, Early Bronze Age

37. Ovechij Jarok near Babino, habitation site, Middle Bronze Age
38. Corlateni habitation site, Early Bronze Age
39. Truşeşti habitation site, Early Bronze Age
40. Cucuteni habitation site, Early Bronze Age
41. Văleni habitation site, Early Bronze Age
42. Piatra Neamţ habitation site, Early Bronze Age
43. Costişa habitation site, Early Bronze Age
44. Kustovtsi cemetery, Middle Bronze Age
45. Sandraki habitation site, Late Bronze Age
46. Vojtsekhivka cemetery, Middle Bronze Age
47. Trojanov cemetery, Early Bronze Age; Narodichi habitation site, Middle Bronze Age
48. Teklino cemetery near Smela, Middle Bronze Age
49. Kiev hoard, Middle Bronze Age
50. Podgortsy habitation site, Middle Bronze Age
51. Stretovka cemetery, Corded
52. Jatskovitsa cemetery, Corded
53. Sobkivka habitation site, Late Bronze Age
54. Kocherzhintsy habitation site, Late Bronze Age
55. Vojtivka habitation site, Late Bronze Age
56. Sinitskij forest habitation site, Late Bronze Age
57. Bilogrudivka habitation site, Late Bronze Age

Index to Fig. 298:

Balice cemetery, Early Bronze Age – 6
Beremljany cemetery, Middle Bronze Age – 27
Bilogrudivka habitation site, Late Bronze Age – 57
Bilopotok cemetery, Early Bronze Age – 31
Brzezinki cemetery, North Carpathian Corded – 8
Bukivna (Bukówna) cemetery, Middle Bronze Age – 23
Chorostkiv cemetery, Early Bronze Age – 34
Corlateni habitation site, Early Bronze Age – 38
Costişa habitation site, Early Bronze Age – 43
Cucuteni habitation site, Early Bronze Age – 40
Goncharivka cemetery, Late Bronze Age – 14
Gruszka hoard, Late Bronze Age – 25
Horodnitsa cemetery, end Early Bronze Age or beginning Middle Bronze Age – 32
Jasionov cemetery, Early Iron Age – 11
Jasło hoard, Middle Bronze Age – 2
Jatskovitsa cemetery, Corded – 52
Jaworze Dolne hoard, Middle Bronze Age – 1
Jezierzany hoard, Late Bronze Age – 24
Kachanovka cemetery, Late Corded, Early Bronze Age – 28
Kamionka Wielka hoard, Late Bronze Age – 32
Kańczuga hoard, early Late Bronze Age – 4
Kiev hoard, Middle Bronze Age – 49
Kocherzhintsy habitation site, Late Bronze Age – 54
Kołpiec cemetery, Early Bronze Age – 17
Komarov cemetery, Middle Bronze Age (Classical) – 22
Koropuzh cemetery near Rudki, Corded – 18
Krekhov hoard, Late Bronze Age – 12
Kustovtsi cemetery, Middle Bronze Age – 44
Kuzminchik cemetery, Early Bronze Age – 36
Loshnev cemetery, Late Bronze Age – 30
Lukawica cemetery, North Carpathian Corded – 7
Maczkówka hoard, Late Bronze Age – 5
Nahirjanka cemetery, Early Bronze Age – 26
Narodichi habitation site, Middle Bronze Age – 47
Niedzieliska hoard, Late Bronze Age – 19
Novosilka Kostjukova cemetery, Late Bronze Age – 33
Oleshov hoard, Late Bronze Age – 21
Ostapovo cemetery, Early Bronze Age – 29
Ovechij Jarok near Babino, habitation site, Middle Bronze Age – 37
Piatra Neamţ habitation site, Early Bronze Age – 42
Poczapy cemetery, Early Bronze Age – 13
Podgortsy habitation site, Middle Bronze Age – 50
Popovtsy cemetery, Early Bronze Age – 15
Rusilov cemetery, Early Bronze Age – 9
Sandraki habitation site, Late Bronze Age – 45
Sarniki cemetery, Early Bronze Age – 20
Shubenitsja cemetery, Early Bronze Age – 26
Sinitskij forest habitation site, Late Bronze Age – 56
Sobkivka habitation site, Late Bronze Age – 53
Stefkowa hoard, Middle Bronze Age – 3
Stretovka cemetery, Corded – 51
Surmychi cemetery, Early Bronze Age – 35
Teklino cemetery near Smela, Middle Bronze Age – 48
Ternopol cemetery, Late Bronze Age – 16
Trojanov cemetery, Early Bronze Age – 47
Truşeşti habitation site, Early Bronze Age – 39
Văleni habitation site, Early Bronze Age – 41
Vojtivka habitation site, Late Bronze Age – 55
Vojtsekhivka cemetery, Middle Bronze Age – 46
Vysotskoe cemetery, Late Bronze Age and Early Iron Age – 10
Wysocko (see Vysotskoe)
Zhezhava, Middle Bronze Age find – 32

Settlements were arranged on river terraces, often at the confluence of two rivers or streams. Large-scale excavations of the habitation sites have not yet been carried out. Here and there several small rectangular huts or oval semisubterranean dwellings have been discovered, usually not longer than 5-6 m, their foundations low in the ground. Hence their frequent appellation of semisubterranean, traces of upright wooden posts and horizontal logs indicate, however, that there were structures above the ground. Actually, the type of house was a combination of semisubterranean dwelling and rectangular hut. The size and form of the huts were variable. Some were built on the megaron plan, consisting of a large room and a small room or porch, with a hearth in the larger room, while some had a quadrangular or oval plan.

The culture can be divided into three main periods: the Early Bronze Age or Bilopotok, the Middle Bronze Age or Komarov, and the Late Bronze Age. The Early Bronze Age, *ca.* 1800 to *ca.* 1450/1400 B.C., retains the final Neolithic and Chalcolithic character of the Corded Pottery culture, although a greater number of metal objects appeared. These artifacts found in graves were common to western Slovakia and southern Poland. A marked change occurred around the end of the fifteenth century B.C., starting the Middle Bronze Age or Komarov phase. The formation of the Komarov complex was closely connected with the first expansion of the central European culture, which had a great enriching influence on the North Carpathians. During the Late Bronze Age, at the end of the second and beginning of the first millennium B.C., the culture developed further under strong central European and late Monteoru influence; its separate phases are not yet well known.

Table IV shows the chronological classification of the North Carpathian culture in comparison with the chronology of the central European Únětice-Tumulus-Urnfield culture:

TABLE IV

Chronological classification of the North Carpathian culture

Approximate dates	*Period*	*Type sites north of the Carpathians*	*Periods in central Europe*
ca. 750 B. C.			
	LATE BRONZE AGE	Bilogrudivka, fig. 317	Late Urnfield
		Gruszka, figs. 92, 93	
		Novosilka, fig. 312	Early Urnfield
ca. 1250 B. C.			
	MIDDLE BRONZE AGE	Komarov, fig. 307	Tumulus
ca. 1450 B. C.			
	EARLY BRONZE AGE	Bilopotok, fig. 299	Únětice
ca. 1800 B. C.			
	CHALCOLITHIC	North Carpathian Corded	Central European Corded
ca. 2000 B. C.			

1. *The beginnings of the North Carpathian Kurgan culture*

Barrow cemeteries appeared north of the Carpathian mountains during the great invasion of the Kurgan people from the east. The earliest barrows contained graves equipped with the early type of corded pottery (crude, poorly fired beakers or pots with rounded or flat bases, decorated with horizontal cord impressions or herringbone motifs), stone battle-axes, and flint knives. This inventory is very close to ones of barrows all over central and northern Europe, to which these eastern people spread.

The earliest indications of the intrusive Kurgan people are found over the whole area where the North Carpathian Bronze Age culture subsequently formed. Kurgans containing battle-axes and corded pottery are found immediately north and east of the Carpathians, in the river valleys of the mountainous area in eastern Slovakia as far as the Ondava and Laborets valleys in the west, in the southeastern corner of Poland, in Galicia and Podolia in the northwestern Ukraine, in Bucovina and northern Moldavia, and in the middle Dnieper area.

In Slovak, Polish, and Ukrainian studies these barrows, which now number into the hundreds, are

conceived as artifacts of the "North Carpathian tumulus culture". Monographs on the main body of finds are being written by Budinskij-Krička in Slovakia and by Machnik in Poland. In southeastern Poland well-preserved tumuli with early corded pottery, stone battle-axes, flint knives, and remains of timber structures were excavated in 1957-1959 in Łukawica and Brzezinki near Lubaczów (Dzieduszycka-Machnikowa and Machnik, 1959; Machnik, 1960). Other reports on these kurgans are to be found in older publications (Kozłowski, 1924, 1939; some are mentioned by Sulimirski, 1959).

Groups of kurgans, usually not higher than 2 m but about 20-30 m or even more in diameter, lay along high riverbanks, along the sandy dunes near lakes or rivers, and at the edge of forests. Hundreds of these have been accidentally destroyed. Excavations usually had to be limited to a few tumuli from the larger cemeteries which once existed there.

Burial rites were very much the same as in the Kurgan culture north of the Black Sea and in the Baltic Corded culture. The central grave was in a rectangular pit. Remains of mortuary huts built of timber were discovered, particularly in cases of cremation, when the timber hut apparently was burned together with the corpse; or the hut burned because of funeral feasts or offerings. Some housegraves were actual imitations of dwelling houses. In the tumulus at Koropuzh near Rudki in the upper Dniester area the walls of the timber house were as much as 4 m long (Sulimirski, 1959, p. 229). Contracted skeletons were usual, but cremation seems to have been practised at the same time. The Łukawica and Brzezinki tumuli with cremation graves within the same type of large rectangular grave pits and the early type of corded pottery are like tumuli of the Kurgan IV phase in southern Russia and the hammerheaded pin phase of the Middle Kuban.

The North Carpathian corded culture can be compared with that of Transylvania, Dobruja, Serbia, central Europe, and the Baltic area, except that its eastern character was preserved here better than, for instance, in central and Baltic Europe, which were influenced by the Bell Beaker and Funnel Beaker cultures. The North Carpathian people apparently found lands which were either not occupied or not heavily settled by the Tripolyans, the Baden, and the Funnel Beaker peoples. So far early barrows have not been found together with graves of the previous inhabitants. The North Carpathian people lived in sandy upland and forested areas, whereas the Tripolyans continued to live in their large villages in the river valleys. The disappearance of the Tripolye culture was not rapid: it went on almost throughout the whole of the Early Bronze Age. The rather pure eastern flavour of culture in the North Carpathian area during the early Corded phase of the Kurgan culture vanished in the following periods. There remained certain Tripolyan colonies who exercised a strong influence on the North Carpathian communities. East of the Sluch River and in the basins of the upper Southern Bug and middle Dniester the Tripolye substratum played an important role during the Early Bronze Age and even later. Tripolye elements, clay floors and walls in house building, ovens within the houses, pottery forms reminiscent of late Tripolyan pear-shaped plain vases, are among the undeniable remnants of the Tripolye civilization. At the end of the Early Bronze Age only small islands of allegedly "pure Tripolyans" persisted. Such were the groups of large cremation cemeteries of the Sofiivka type around Kiev. They do not contain typical Kurgan elements and conitinue the Tripolye style of ceramic art and flint manufacturing (Gimbutas 1956, pp. 106-110; Danylenko and Makarevych, 1956; Kanivets, 1956; Zakharuk, 1956).

Was the North Carpathian group already a separate culture or a part of the widely spread Kurgan culture? Because of the uniformity of the burial rites, of the ornamental motifs on pottery (horizontal cord impressions, herringbone motifs, fir-tree motifs, rows of incisions below the cord impressions), battle-axes of semiprecious stone, usually with a drooping blade, flint knives and arrowheads, and other elements of the Kurgan culture which reccur throughout central, Baltic, and Balkan Europe, the North Carpathian group cannot be treated as an entirely separate culture. It was rather a branch of the Kurgan culture not greatly different from the other branches. However, in it we find the beginnings of the Bronze Age culture. It was already a cultural group whose limits of distribution can be defined. The culture of the successive phases, the Bilopotok and Komarov, continued in the same area.



FIG. 299. Pots from the cemetery of Bilopotok (Biały Potok) near Chortkiv, western Ukraine. Scale approx. 1/6. *After* Kostrzewski, 1928.

2. *The Early Bronze Age, or the Bilopotok period, ca. 1800 B.C. – ca. 1450/1400 B.C.*

The so-called Bilopotok "culture" is an Early Bronze Age group with developed individual features; it is contemporaneous with the early and classical Únětice cultures in central Europe and with the Usatovo and early Monteoru groups west of the Black Sea.

The name "Bilopotok" (also "Bilyj Potok" in Ukrainian or "Biały Potok" in Polish) is derived from a cemetery of the same name near Chortkiv in the district of Ternopol in the upper Dniester area excavated in the 1920's (Kostrzewski, 1928). It contained stone cists with inhumation graves furnished with two-handled vases decorated with cord or imitation cord impressions forming hanging triangles, incised horizontal lines, and rows of dots, beakers and bowls (fig. 299). The pots were gray or reddish gray in color and tempered with shells or mica, sand or quartz.

Pottery of the same style has now been reported from 20 or more tumulus cemeteries and habitation sites in northern Moldavia and Bucovina (Costişa near Buhuşi, Piatra Neamţ, Cucuteni, Truşeşti, Corlateni near Dorohoi, Văleni near Roman; the finds are in the archaeological museums of Iaşi and Bucharest), in Podolia (Kachanovka and Ostapovo near Ternopol: Bryk, 1936; Popovtsy near Ternopol; Zakharuk, 1959; Nahirjanka and Shubenitsja near Buchach: Kozlowski, 1928; Zavodintsy near Kamenets Podolskij: Rybalova, 1953), Zhezhava near Zaleshchiki (Rogozinska, 1959) and elsewhere. The gradually accumulating evidence has now become almost sufficient to enable us to understand the chronological and cultural position of this Early Bronze Age complex.

The most important site for chronological comparisons is the fortified hilltop village of Costişa near Buhuşi located on the high (60 × 100 m) terrace of the Bistriţa River in northern Moldavia (already mentioned above in connection with the Monteoru culture; excavated in 1959-1960: Vulpe and Zamosteanu, 1962). Its lower layer yielded double-handled vases with corded or imitation corded decoration (fig. 300, *3-5*), bowls (fig. s 300, *6*), kitchenware, and some representative vases of an exceptionally graceful form (fig. 300, *1*, *2*). This pottery is clearly the Bilopotok type. The Bilopotok site in Costişa was overlaid by another village which belonged to the Monteoru culture contemporaneous with phases Ic_3 and Ic_2 of the Sărata Monteoru culture. Hence the earlier site must be about contemporaneous with the Sărata Monteoru horizon Ic_4, which is synchronous with Usatovo in the western Ukraine, Schneckenberg in eastern Transylvania, and Glina III in Walachia.

The basic traits of Kurgan burial persisted. Tumuli originally formed quite large cemeteries from



FIG. 300. Pottery from the lower layer of the habitation site at Costişa near Buhuşi, Moldavia. Scale **1**, *ca.* 1/5; **2**, *ca.* 1/3; **3-5**, *ca.* 1/2. *By courtesy* of A. Vulpe, Archaeological Institute of the Academy of Sciences, Bucharest.

which only a few groups of barrows now remain, some so low that they are hardly recognizable. In the upper Dniester area a number of well-preserved barrows have been excavated. Of note are the tumuli of Kochanovka and Ostapovo (Ostapie) near Skalat in the district of Ternopol (Bryk, 1930, 1936). The barrows were low but quite large, 1-2 m high and over 20 m in diameter surrounded by stone rings; there were usually one to three graves to a barrow. The dead were buried in a contracted position, lying on the left or the right side, within a cist-like structure of stones (fig. 301). In each grave there was either a pot, a stone axe, a flint knife, or a scraper and fragments of copper ornaments. The grave equipment was entirely of the same character as during the earlier period of the Kurgan culture: a pot, a battle-axe made of hard stone of dark green color, triangular flint arrowheads, and a flint knife. Finds from two graves of the cemetery of Popovtsy near Ternopol are illustrated in figure 302. The house-grave idea continued. Stone constructions, solidly built either of stone blocks or of sandstone slabs, replaced the

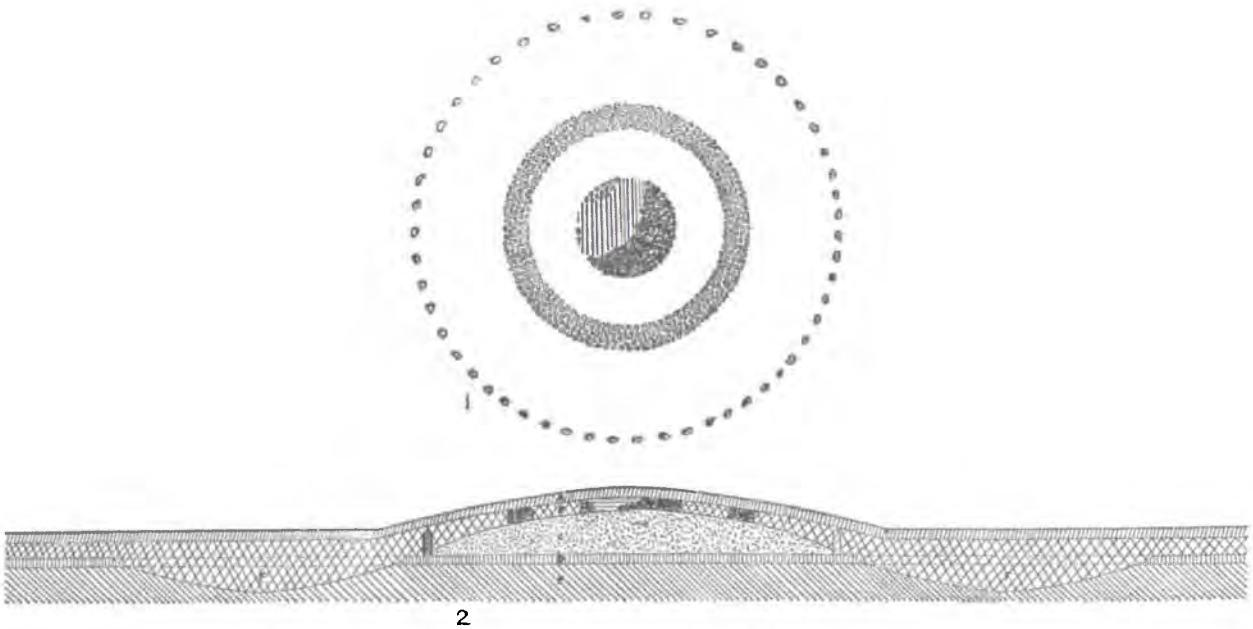


FIG. 301. **1,** plan, and **2,** cross-section of barrow No. 6 in the cemetery of Kachanovka, near Ternopol, western Ukraine. **2:** *A*, earthen layer, 20 cm. thick; *B*, black earth layer, 40 cm. thick, which contained the stone cairn above the grave in the center, 10 m. in diameter; *C*, earthen barrow; *D*, layer of black soil; *E*, loess; *F*, ditch around the barrow. *After* Bryk, 1936.

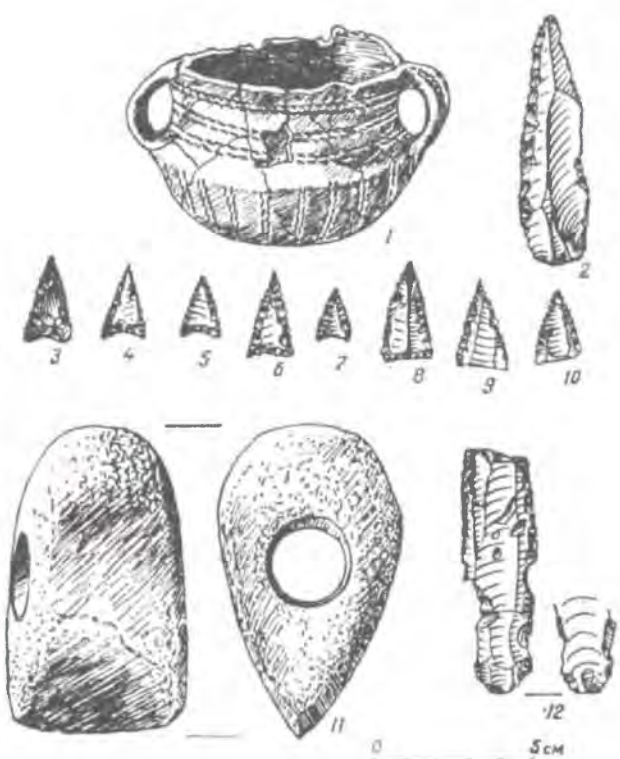


FIG. 302. Inventory from two stone cist graves discovered at Popovtsy near Ternopol, upper Dniester area. **1,** corded double-handled pot; **2, 12,** flint knives; **3-10,** flint arrowheads; **11,** battle-axe made of hard stone of dark green color. **1, 2,** grave No. 1; **3-12,** grave No. 2. *After* Zakharuk, 1959.

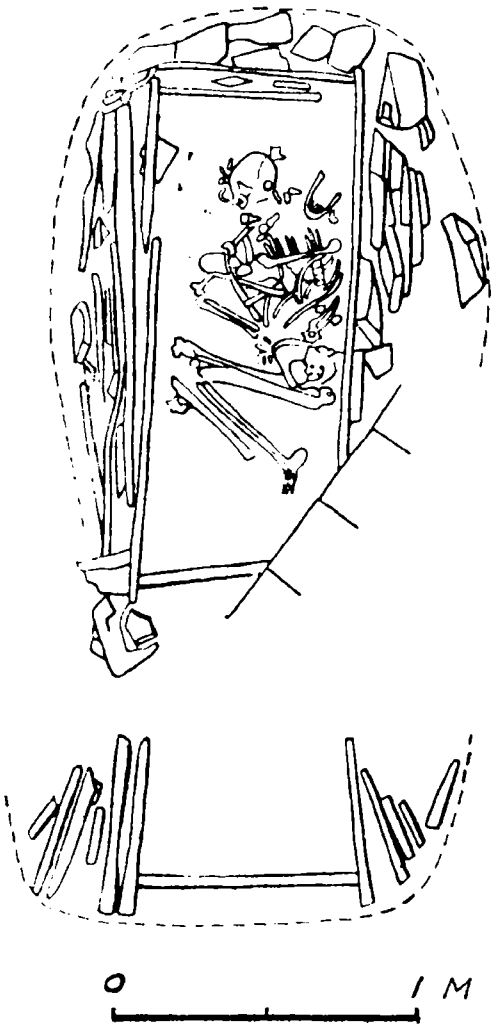


FIG. 303. Stone cist grave built of thin sandstone slabs and supported by smaller stones. Plan and cross-section. The dead was equipped with flint arrowheads, stone-axe, flint knife, and pot. Grave No. 2 from the cemetery of Popovtsy, district of Ternopol in the upper Dniester area. *After* Zakharuk, 1959.

timber structures. The sandstone came from local deposits abundant in Podolia. In Podolian graves cists were made of specially prepared thin slabs (fig. 303).

Copper artifacts were imported from western Slovakia. It has already been mentioned that copper ornaments and daggers of Nitra type in western Slovakia spread over southern Poland, Volynia, and Podolia to the middle Dnieper. This can be seen from the hoard of Stublo (fig. 12), from earrings, a pendant, and a diadem found in the city of Kiev (fig. 304), and from the same type of earrings, a necklace made of spiral tubes, and ornamented convex plates found in the cemetery of Poczapy near Zolochiv (Złoczów) in eastern Galicia (fig. 305) and in several other localities.

Amber artifacts and faïence beads appear here as they do in early Únětice, Mierzanowice, and Usatovo assemblages. Metal artifacts as well as amber and faïence beads are found in exceptionally rich graves, possibly indicating that metal was used by upper class people, chieftains or warriors. Along with copper dagger blades with three rivet holes and copper spiral rings and bracelets, rings made of tin appeared in several graves (Krylov, district of Stanislav: Kostrzewski, 1948, p. 183; tumulus No. VII at Balichi, district of Mostiska: Sulimirski, 1959, p. 230). Tumulus No. VII of the cemetery at Balichi (Balice) must have belonged to an important person since it included not only a ring of tin, but several

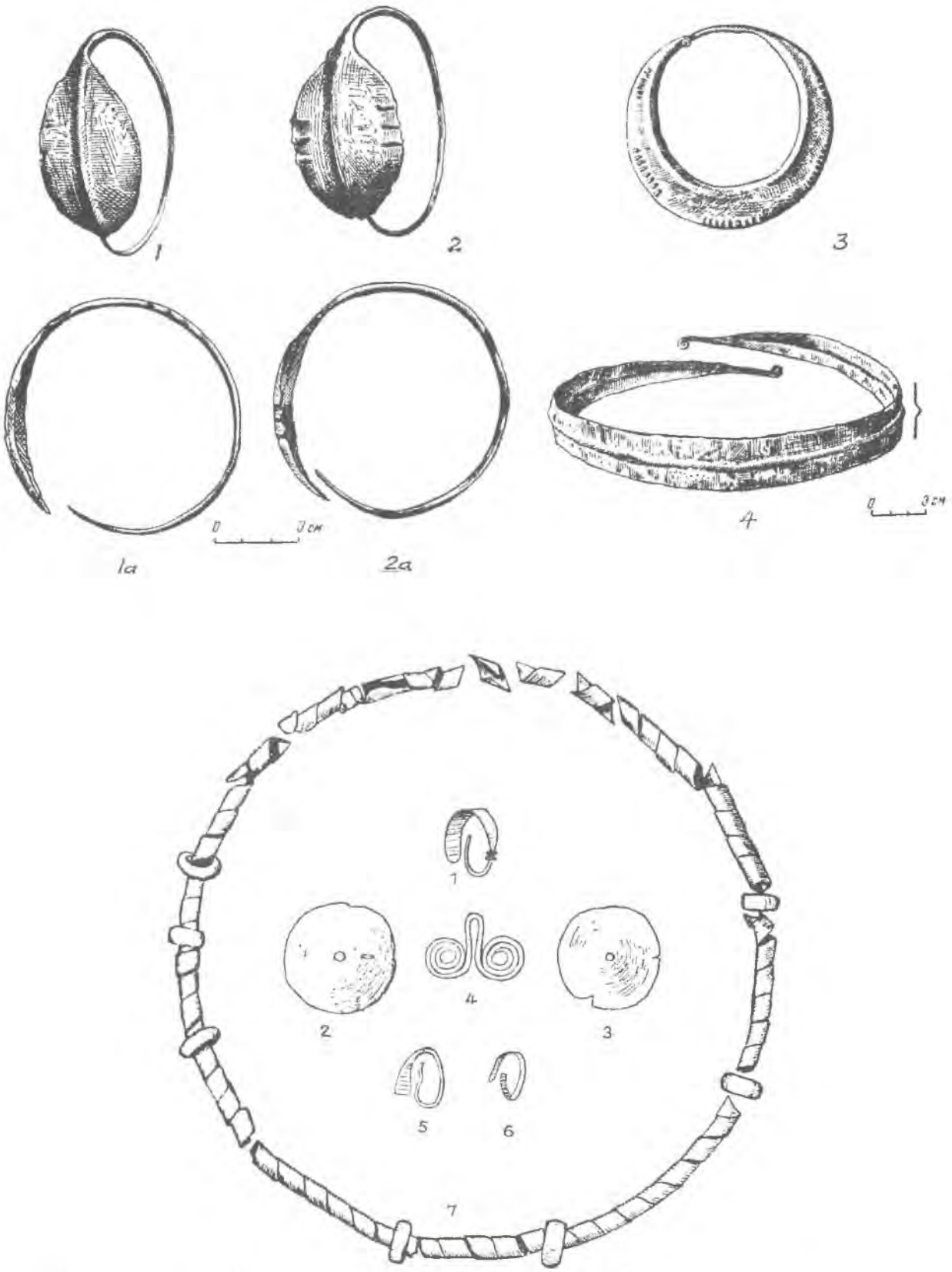


FIG. 305. **1, 5, 6,** earrings; **2, 3,** convex copper plates; **4,** double-spiral pendant; **7,** necklace from one grave in the cemetery of Pochapy near Zolochiv, upper Dniester area. Scale approx. 1/2. *After* Pasternak, 1932.



FIG. 306. **1**, flint dagger; **2**, **3**, knives; **4**, **5**, arrowheads; **6**, flint insert; and **1**, a shaft-hole axe from a grave in the barrow at Rusilov, upper Western Bug. Fragments of a gold basket earring were found in the same grave. Scale approx. 1/2. *After* Bryk, 1934.

copper bracelets, a fragment of a pin, a copper dagger blade, a stone battle-axe, a flint celt, flint arrowheads and knives, a large amphora with small handles on the shoulders, and a small beaker with a flat base. From such graves it can be seen that social stratification existed and that it was of the same type as in the parent Kurgan culture and in sister cultures such as the Únětice, the Baltic, and the Monteoru.

The phase contemporaneous with the classical Únětice period can be labeled as late Bilopotok. Flint was still extensively used. Flint points or copies of metal daggers of outstanding workmanship were found here as they were in southern Scandinavia and northern Germany during the Flint Dagger Period. In addition to the bronze or copper artifacts imported from the Úněticians, gold artifacts appeared. A gold basket-shaped earring was found in the barrow of Rusilov, district of Kamenka Bugskaja (Bryk, 1934). The same grave in this barrow contained a flint dagger (fig. 306, *1*), knives (fig. 306, *2*, *3*), heart-shaped flint arrowheads (fig. 306, *4*, *5*), a trapezoidal flint insert (fig. 306, *6*), a perforated stone axe (fig. 306, *7*), a bronze ring, and undecorated pottery sherds. Unfortunately, the gold earring was badly preserved and has not been reproduced.

The same burial rites and grave type continued. The Rusilov tumulus was 80 cm high, but was about 20 m in diameter. The skeleton lacking one thigh bone and both feet, lay in the center of the tumulus above the ancient surface on specially leveled ground in a contracted position on its side with its head oriented northward. The thigh bone had been placed separately in the grave, but there were no traces of the foot bones. In other cases the head of the deceased was cut off and put at his side. Such peculiar burials occur once in a while not only in the Bilopotok period, but throughout the Bronze Age. Double graves of a man and a woman are also a usual form.

3. *The Middle Bronze Age or Komarov period, ca. 1450/1400 B.C. – ca. 1250 B.C.*

The Bilopotok period ended with the appearance of central European Koszider or B_1 bronzes; in the upper Dniester area such bronzes suddenly occur in great quantities. Pendant tutuli and spirals for dress or belt decoration (fig. 307, *5*, *6*), gold hair-rings with broad overlapping ends (fig. 307, *4*), massive bracelets with tapered ends decorated with zigzag and vertical striations (fig. 307, *3*), spiral arm rings, "Hungarian" battle-axes, wrist-guards ending in a large spiral, pins with disc heads and twisted stems

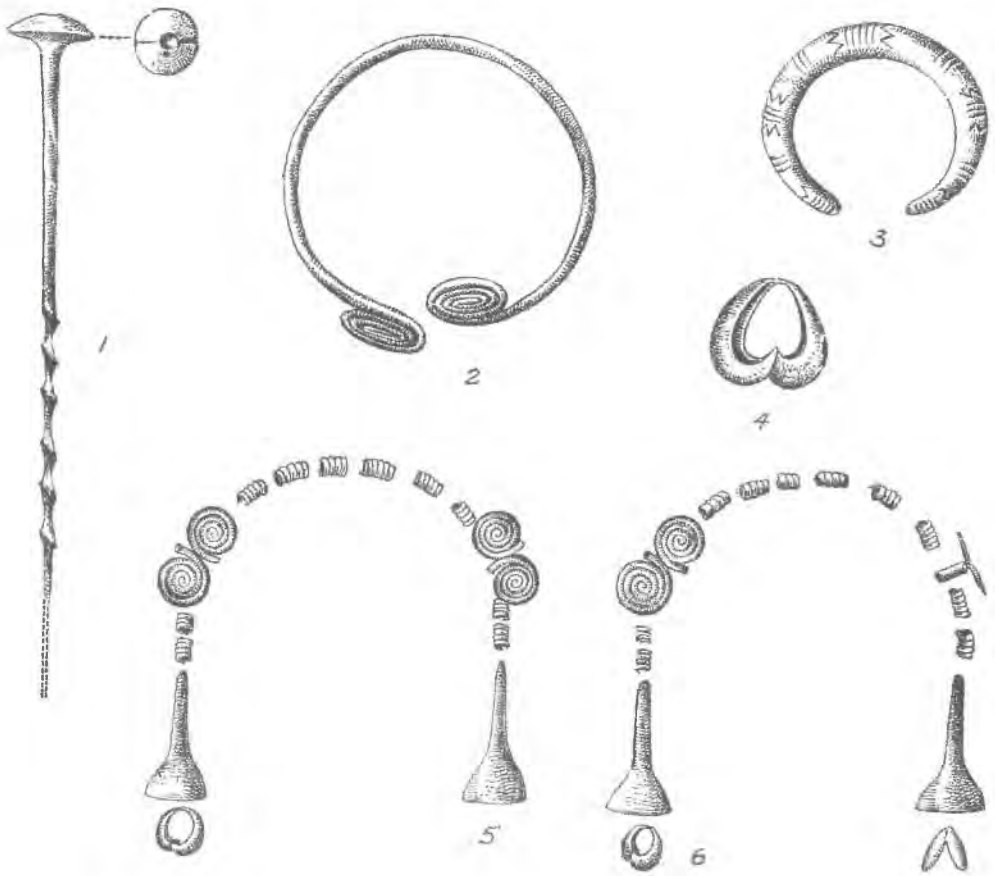


FIG. 307. Ornaments from barrow No. 8 of the Komarov cemetery near Stanislav, near upper Dniester, western Ukraine. **1**, pin; **2**, neck-ring; **3**, bracelet; **4**, earring or hair-ring of gold; **5, 6**, pendants and spirals of gold. Scale approx. 1/2. *After* Sulimirski, 1936.

(fig. 307, *1*), and sacred ivy leaf pendants are very frequent in former Galicia, Podolia, and Bucovina, immediately north of the Carpathian mountains. In the vicinity of the upper Dniester, the San, the Wisłoka, and the upper Western Bug basins over 30 hoards have been found (cf. the distribution of some of the hoards: Kostrzewski, 1918). The outstanding ones are from Stefkowa on the upper Dniester (Kostrzewski, 1918) and from Jaworze Dolne on the Wisloka (Nosek, 1959; *see* references for the Study of Chronology). The probable origin of the imported artifacts they contain is the southern Carpathian area in Slovakia. The Tatra (Jablonica) Pass and the Hornad-Poprad-Dunajec-upper Vistula rivers are the likely routes along which the artifacts were brought. It has already been mentioned that "Hungarian" battle-axes and other related objects were found in the Kiev area and beyond the Dnieper River (cf. the hoard of Nikolaev, fig. 39). A massive bracelet ending in spiral discs came to light in the barrow of Teklino near Smela south of Kiev (Bobrinskij, 1901, III, p. 18, fig. 40).

An outstanding cemetery with 56 tumuli was excavated in Komarov (Komarów) near Galich (Halicz) in the district of Stanislav on the upper Dniester (Sulimirski, 1936). As this cemetery is the largest and yielded datable bronze and gold ornaments, the whole North Carpathian Middle Bronze Age is called the Komarov culture. Another important cemetery with 17 excavated tumuli is Bukivna (Bukówna) on the upper Dniester in western Podolia (excavations of 1931 by Bryk: Rogozinska, 1959). Sites with related ceramic and bronze artifacts are known in the east from south of Kiev (Teklino cemetery: Bobrinskij, 1901; Podgortsy: Rybalova, 1953, p. 222) and in the south from the area of Chernovitsa and Kamenets Podolskij on the middle Dniester (Ovechij Jarok site at the village of Babino: Passek, 1959).

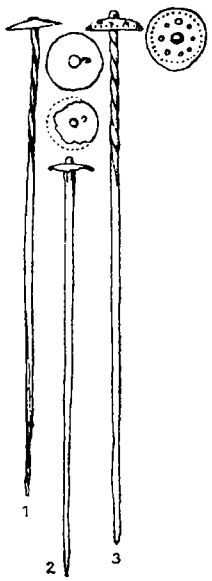


FIG. 308. Pins from the classical North Carpathian period. **1**, Beremljany, district of Zaleshchiki; **2**, 3, Putjatyntsi, district of Rohatyn. Upper Dniester area. Scale approx. 1/2. *After* Pasternak, 1932.

In the north several cemeteries and habitation sites were uncovered in Volynia (the cemetery of Kustovtsi, district of Polonnoe: Kostrzewski, 1928; the cemetery of Vojtsekhivka, near Novo-Miropol in the area of Zhitomir: Lagodovska, 1948).

Most of the tumuli were low, 70-80 cm high, 19-20 m in diameter. Only one or two were large, one of those in Bukivna was 3 m high and 60 m in diameter. This is the usual method of indicating the burial places of a chieftain or other important person. The tumuli lay in a long chain of groups of two or three mounds. Skeletons in contracted or extended positions lay in carefully built cists of sandstone slabs as in the cemetery of Beremljany near Buchach, which has been dated by a large pin with a disc head and a twisted stem (fig. 308, *1*) and the cemetery near Horodenka (Rogozinska, 1959, pp. 103, 104). In other cemeteries like Bukivna and Komarov stone cists were not found.

There was usually one grave to a barrow, but in some cases two to seven were found. Double graves, a man and woman buried at the same time are quite frequent. In the cemetery of Vojtsekhivka on the Sluch River almost every barrow contained a double grave. In such burials the man lies on the right side, the woman on the left, with their heads in opposite directions. In several instances it could be clearly seen that the man's skeleton was in the center of the grave, buried first; the woman's bones lay above the man's. In the same cemetery one barrow contained a triple grave, two men and a woman lying in the opposite direction, one man lay behind the other man, his left leg above the woman's legs (Lagodovska and Zakharuk, 1956, pp. 70 ff.). The high percentage of double graves shows that graves containing a man and a woman may represent willing burial of the widow with her dead husband. Bones of domestic animals were frequent finds in the barrow, remains either of funeral feasts or of animal sacrifices. In one of the barrows at Bukivna a grave of two young horses was placed on the ancient surface in the center of the tumulus.

Cultural continuity is shown not only by the burial rites. Pottery, the most common type of artifact, while essentially conservative, did develop somewhat. Typical Bilopotok forms changed under strong influence from central Europe: fluted and boss-decoration was added to the conservative corded or imitation corded motifs, and new forms such as jugs appeared. Double-handled vases continued to be typical (fig. 309, *7*; pl. 87). Oval pots, 15-20 cm high, S-profiled or tulip-shaped (fig. 309, *1*, *2*; pl. 88, *7*, *8*), bowls (fig. 309, *4*, *6*), cups (fig. 309, *3*), and dishes were frequent. Two-handled vases, vases without



FIG. 309. Middle Bronze Age pottery from the cemetery of Vojtsekhivka near Zhitomir (**1, 3, 4, 6, 7**) and Komarov cemetery near Stanislav (**2, 5, 8**), western Ukraine. Scale 1/5. *After* Terenozhkin, 1955.

handles, and large pots were usually decorated with horizontally incised lines and incised hanging triangles (pl. 88, *4*, *6*, *8*, *9*) or with a ridge (fig. 309, *1*, *2*), but some were fluted (pl. 88, *1*, *2*). Boss-decorated jugs (fig. 309, *5*; pl. 88, *5*) closely resemble Hungarian, Rumanian, western Slovakaian, and lower Austrian jugs of the Koszider period. Pots were usually light grayish-red in color; the clay was tempered with sand.

In addition to a great number of bronzes of southern origin, there are some which do not come from the Hungarian-Slovakian sphere. Among such artifacts, possibly local products, belong pins with rhomboid heads. One made of sheet copper was found among other ornaments in one barrow at Komarov (fig. 310, *4*). Such pins have thus far appeared only in a few places: the Gulaj Gorod (Teklino) barrow near Smela district of Kiev (fig. 310, *2*, *3*), and the hoard of Medgidia in Dobruja, eastern Rumania (fig. 310, *1*). These rhomboid pins probably derived from the Borodino type (pl. 12, *11*) in the

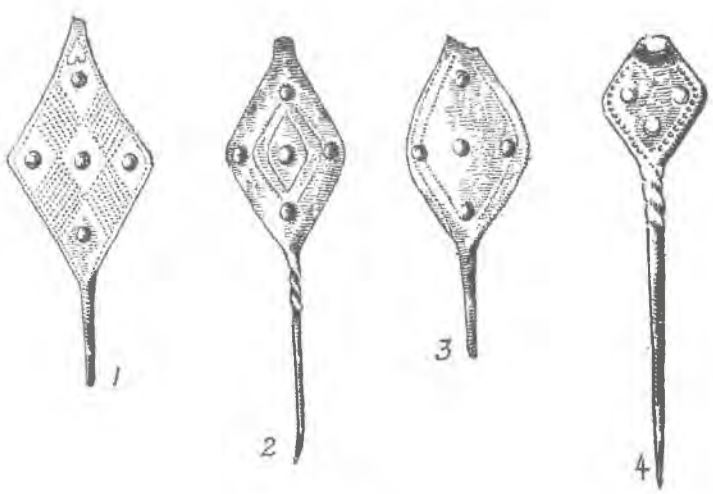


FIG. 310. Pins with rhomboid heads. **1**, Medgidia cemetery, Dobruja, eastern Rumania; **2, 3**, Gulaj Gorod cemetery near Smela, district of Kiev; **4**, Komarov cemetery, upper Dniester. Scale approx. 1/3. *After* Hachmann, 1957 (**2, 3**); Nestor, 1938 (**1**); Sulimirski, 1936 (**4**).



FIG. 311. Grave inventory from the barrow of Kustovtsi cemetery, district of Polonnoe, Volynia. **1,** neck-ring and **2,** bracelet with spiral-plate ends; **3,** brooch or pendant with spiral-plate ends; **4,** spiral arm-ring; **5-6,** pots. Scale of ornaments approx. 1/3. *After* Kostrzewski, 1928.

area northwest of the Black Sea. In the Northern Area Bronze Age pins with elongated rhomboid heads appeared in assemblages of Period II (Forssander, 1936, pl. LIX; see references for the Study of Chronology). Neck rings (fig. 307, *2*; 311, *1*), bracelets (fig. 311, *2*), and pendants or brooches (fig. 311, *3*) ending in spiral discs were probably local products.

Bronze was used chiefly for ornaments. Everyday tools continued to be made of stone or antler. Flint knives and flint or stone celts (pl. 88, *3*) were found in graves. The habitation sites yielded antler axes, flint inserts for sickles, and triangular flint arrowheads (the settlement of Sandraki, district of Vinnitsa: Lagodovska, 1954). These settlements were on high riverbanks or sand dunes. From the pits which have been excavated it appears that the house type was semisubterranean. However, too little excavation work has been done in the settlement area to speak about house types and village formation.

4. *The Late Bronze Age, ca. 1250 B.C. to the 8th century B.C.*

This long period can be subdivided into several chronological phases on the basis of bronze types. The earlier phase, *ca.* 1250 to 1100 B.C., is represented chiefly by hoards in the upper Dniester and upper

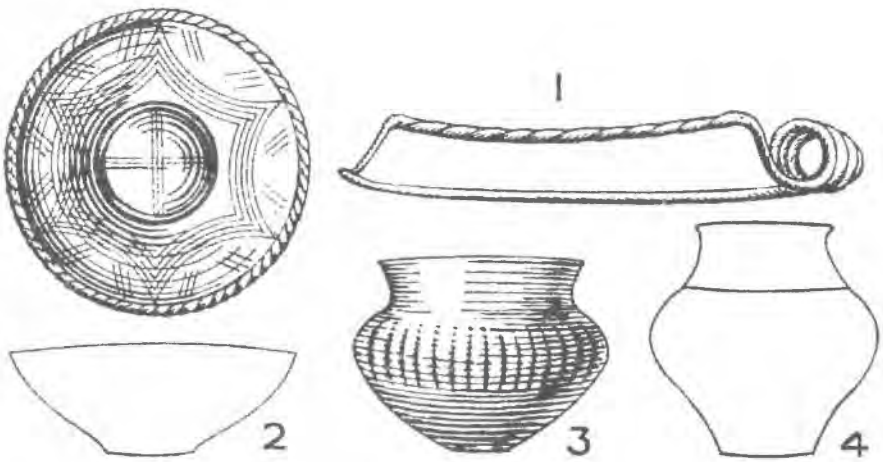


FIG. 312. Pots and fibula from Novosilka Kostjukova site near Zaleshchiki, upper Dniester area. **1**, violin-bow fibula, with a twisted bow; **2**, bowl with a star design on the inside and a fluted rim; **3**, fluted vase; **4**, plain vase. Scale: pin, approx. 1/1; pots, approx. 1/5-1/6. *After* Sulimirski, 1950.

Vistula basins. It is contemporary with the early Urnfield period of central Europe. The rest of the Late Bronze Age, from *ca.* 1100 B.C. to *ca.* the 8th century B.C., is parallel with the late Urnfield period.

Bronze types were similar to those current south of the Carpathian mountains in eastern Hungary, southeastern Slovakia, and northwestern Rumania. Hence, influences on the Late Bronze Age metal culture were directly south to north instead of from the western Carpathian-Middle Danubian area as in the Middle Bronze Age.

Bronzes partly replaced stone and bone tools, socketed celts, chisels, and sickles came into use, and local metallurgy developed. The hoards contained many unfinished and broken artifacts which show that metallurgy was in the hands of local smiths.

During the Late Bronze Age tumuli disappeared and the dead were buried in flat graves. Exactly when this change occurred we ar not yet able to say because there are no excavations from the last centuries of the second millennium B.C. The bulk of our material comes from the very end of the Bronze Age.

a. *The period parallel to the central European early Urnfield, from ca. 1250 to ca. 1100 B.C.*

The period which was contemporaneous with the early Urnfield times of central Europe is represented by several assemblages of finds which can be labeled after two more important sites: i) Novosilka and ii) Gruszka.

i. *The Novosilka phase, ca. 1250 B.C. to ca. early twelfth century B.C.*

Unfortunately, neither large cemeteries nor habitation sites belonging to this phase have been excavated. The name Novosilka comes from an isolated grave at the village of Novosilka Kostjukova near Zaleshchiki on the upper Dniester (Sulimirksi, 1950). The grave is exceptionally valuable because it yielded a violin-bow fibula (fig. 312, *1*) along with black graphite vases (fig. 312, *2*, *3*) and coarse-grained pottery with a rough brown surface (fig. 312, *4*). The type of the fibula is not the very earliest in the series of violin-bow fibulae but is similar to the Peschiera type. Its probable date is about 1200 B.C. I cannot cite exact parallels for this fibula in the south, but I would place it typologically between Peschiera proper, second half of the thirteenth century B.C., and the stilted varieties or asymmetric violin-

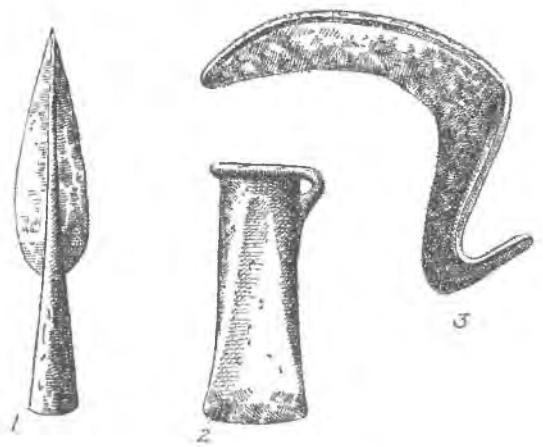


FIG. 313. Bronze types from the hoard of Oleshov near Tlumach, upper Dniester area. **1,** spearhead; **2,** socketed celt with flat sides; and **3,** sickle with a hooked tang. Scale: **1, 2,** approx. 1/3; **3,** approx. 1/6. *After* Sulimirski, 1938.

bow fibulae of the Urnfield II period in central Europe; that is, the Velatice horizon in the middle Danube area and the Hötting-Morzg in the Tyrol, twelfth century B.C. Graphite vases, particularly fluted types (fig. 312, *3*), have predecessors in the Middle Bronze Age. The decoration of the inside of bowls and dishes with sun or star motifs and the fluting of the rim as on the Novosilka bowl (fig. 312, *2*) are patterns which recur in central Europe.

ii. *The Gruszka phase, the twelfth century B.C.*

This name is taken from the hoard of Gruszka, near Tlumach in the valley of the upper Dniester, which contains a number of bronze ornaments, tools, and weapons which typify this phase in the Carpathian area (figs. 92 and 93). There are socketed celts with upward-pointing sockets, spearheads, tanged and button sickles, which along with almost all the types of ornaments from this hoard show indubitable correspondence with metal types of the twelfth century B.C. in Transylvania, northern Yugoslavia, eastern Hungary, and Slovakia. Another hoard from the same area, found at Oleshov near Tlumach, contained metal types current in Transylvania and the western Pontic area: sickles with hooked tangs (fig. 313, *3*) a socketed celt with flat sides (fig. 313, *2*), and a socketed spearhead with plain wings (fig. 313, *1*). The large hoard of Maczkówka near Przeworsk in western Galicia included neck rings decorated with vertical and horizontal striations (fig. 314, *2*) in addition to socketed celts with projecting mouths and celts with a letter-V decoration, anklets with large spiral terminals, a phalera with concentric decoration, long pins with heavily ribbed heads, spiral armbands, and bracelets with tapered ends (fig. 314, *1*). The same types of bronzes were found in several other localities, among them the hoard of Kańczuga near Przeworsk (Archaeological Museum of the Academy of Sciences in Kraków). Isolated examples of early Urnfield flange-hilted swords have been found in the upper Dniester area.

b. *The period parallel to the central European late Urnfield, ca. 1100 B.C. to the 8th century B.C.*

The stratified cemetery of Vysotskoe (Wysocko) near Brody in Volynia (Sulimirski, 1931, a and b) is an important Late Bronze Age monument. The site yielded 141 graves belonging to four successive layers. Tulip-shaped and biconical vases were the most frequent finds from all of the four layers; they indicate the cultural continuity in this area. In the first two strata, only bronze artifacts appeared; in the third and fourth, there were iron knives and iron ornaments. Hence, the first two layers of the Vysotskoe cemetery belong to the end of the Bronze Age. Pots from the graves belonging to the earliest phases

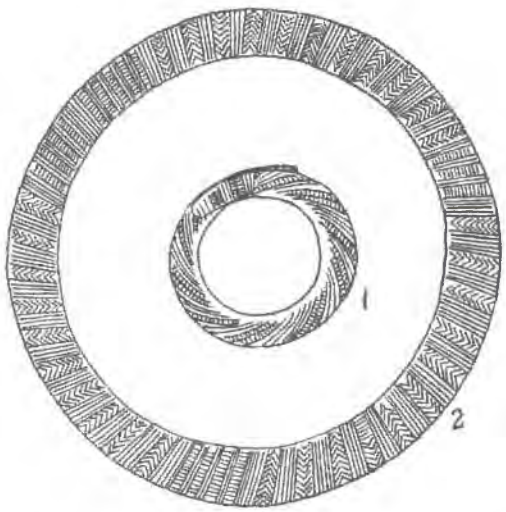


FIG. 314. **1**, bracelet and **2**, neck-ring from the hoard of Maczkówka near Przeworsk in western Galicia, upper Dniester area. Scale less than 1/3. *After* Kozłowski, 1928.

were large and well fired, while those from the later two strata were of smaller dimensions and made of porous clay with a high percentage of sand. Generally, the Bronze Age graves were richer than the Early Iron Age graves (Sulimirski, 1931b, 4-58). The finds from the lower graves have parallels in other cemeteries of Volynia and Podolia (fig. 315).

The cemetery consisted of irregular rows of inhumation graves in which the skeletons lay extended. Stone constructions were not used, the dead being buried in rectangular pits. In most cases the graves were single, but some contained both a man and a woman. The double graves were generally more richly furnished than the single. Seven to ten per cent of the graves were cremation graves, and, judging from pottery and ornaments, they must have belonged to the same period as the inhumation graves. The partially cremated bones were either placed in urns or in pits without urns, but covered with a dish. The grave goods were put into the grave after cremation.

Usually one to six pots ranging from small cups to large tulip-shaped beakers, were found in each grave, plus one or several bronze ornaments: e.g., a straight pin ending in a rolled-up head, an earring, a bracelet with overlapping ends, a finger-ring, or a spiral temple ornament with spiral ends (fig. 315, *7*). No weapons were found. Spiral ornaments worn at the temples are one of the "national" features unique to this culture and have been found in several cemeteries and in habitation sites between Volynia and

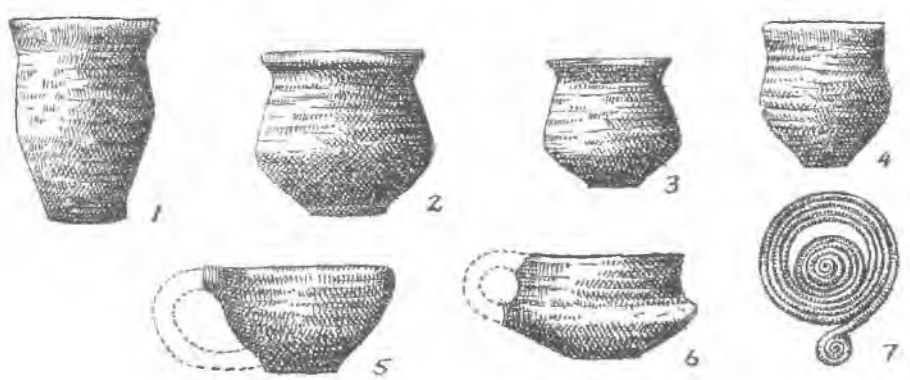


FIG. 315. **1-6**, pots and **7**, spiral temple ornament from the cemetery of Goncharivka (Belzec), near Zolochev, western Ukraine. Scale: pots approx. 1/5; ornament 2/3. *After* Sulimirski, 1931b.

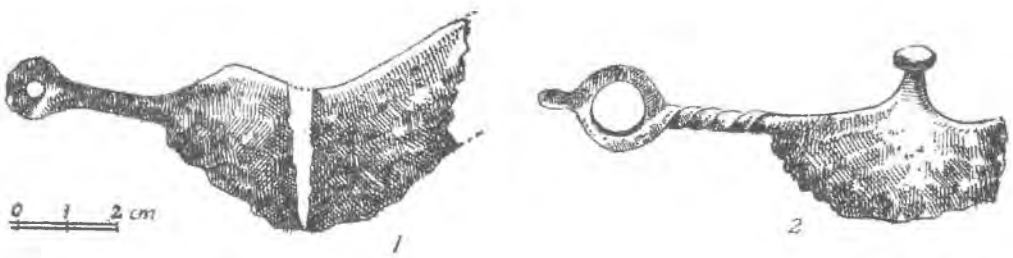


FIG. 316. Razors from the cemeteries of: **1,** Loshnev near Terebovlja and **2,** Goncharivka near Zolochev, district of Lvov. *After* Szlankówna, 1938.

the middle Dnieper. In the cemetery of Goncharivka near Zolochiv, district of Lvov, such a spiral temple ring was found together with early Vysotskoe pottery (fig. 315, *1-6*). In the same cemetery a bronze razor was found. Its curved and twisted handle ended in a ring with a protuberance at its outer edge. On the inner side of the blade was a button-shaped bulge (fig. 316, *2*). This type of razor is closest to razors from late Urnfield (Urnfield V) central Europe, and is reported from northern Yugoslavia, Hungary, Austria, Silesia, and Brandenburg. Related types have been found in Villanovan assemblages from Italy. Another razor, probably of a somewhat earlier date than that of Goncharivka, was found in the cemetery of Loshnev near Terebovlja, district of Lvov (fig. 316, *1*).

The finds from the Volynian cemeteries are close to artifacts from the Bilogrudivka habitation sites west of the middle Dnieper, about 700 km east of the Vysotskoe cemetery. This shows that cultural uniformity existed over a large area. The settlement of Bilogrudivka (or "Byelogrudovka" in Russian) and many other sites with related material are located on the upper Ingulets River (Terenozhkin, 1951, 1952a and b, 1955, 1957; Berezanska and Titenko, 1952, 1954).

The Bilogrudivka habitation sites were built on high terraces, quite far from the river, mainly in the Tjasmin and the Uman' river basins, in the black earth zone. Finds usually occur in ash-pits located in low mounds, probably the remains of former dwellings. The thick layers of ashes indicate that the sites were continuously occupied for a long period. Potsherds were black, gray, or yellow in color; some black sherds belonging to large vases were beautifully polished. There were also large quantities of kitchen utensils: cups with high handles, and miniature handleless cups crudely made of thick clay and tempered with crushed granite. Many pots were undecorated. On the large vessels, there was a narrow cylindrical ridge around the neck, the ends not meeting but turned downward. The ridges were frequently decorated with finger-tip impressions, a type of decoration used in the North Pontic area and southern Russia. The black polished vases were ornamented below the shoulders with horizontal lines or zigzags executed with a fine dentate stamp or incised. Among the pottery remains there were numerous round, conical, or cylindrical whorls, loom-weights, and small clay discs. Pottery from the site of Sobkivka near Uman' is illustrated in figure 317. Flint inserts for sickles (fig. 318, *10*, *11*) appeared in every habitation site, as did perforated stone axes (fig. 318, *9*), bone awls (fig. 318, *4*, *5*), and stag-antler axe-sleeves.

The basis of the economy was agriculture; domesticated animals and hunting were secondary. Excavations of habitation sites to date have not yielded large quantities of domestic or wild animal bones, although some bones of cattle, sheep, goats, pigs, dogs, and deer have been identified (site of Sinitskij forest near Uman': Terenozhkin, 1951, p. 170). Horse and pig meat was evidently used for funeral feasts and as offerings to the dead, for in pots from the cemetery of Vysotskoe traces of fat and the bones of horses and pigs were found. In addition to pots of meat, there were loaves of bread, some of which were charred (Sulimirski, 1931, pl. XXIV, *19*). Chemical analysis of the loaves gave the following figures: 83.05 per cent *bituminum*; 12.15 per cent other organic substances; 4.28 per cent grain ashes; 0.4 per cent moisture. There was no salt in the bread, and the kind of grain used was unidentifiable.



FIG. 317. Late Bronze Age pottery of Bilogrudivka type from the ash pits of the habitation site at Sobkivka, on the Uman' River, western Ukraine. *After* Berezanska and Titenko, 1954.

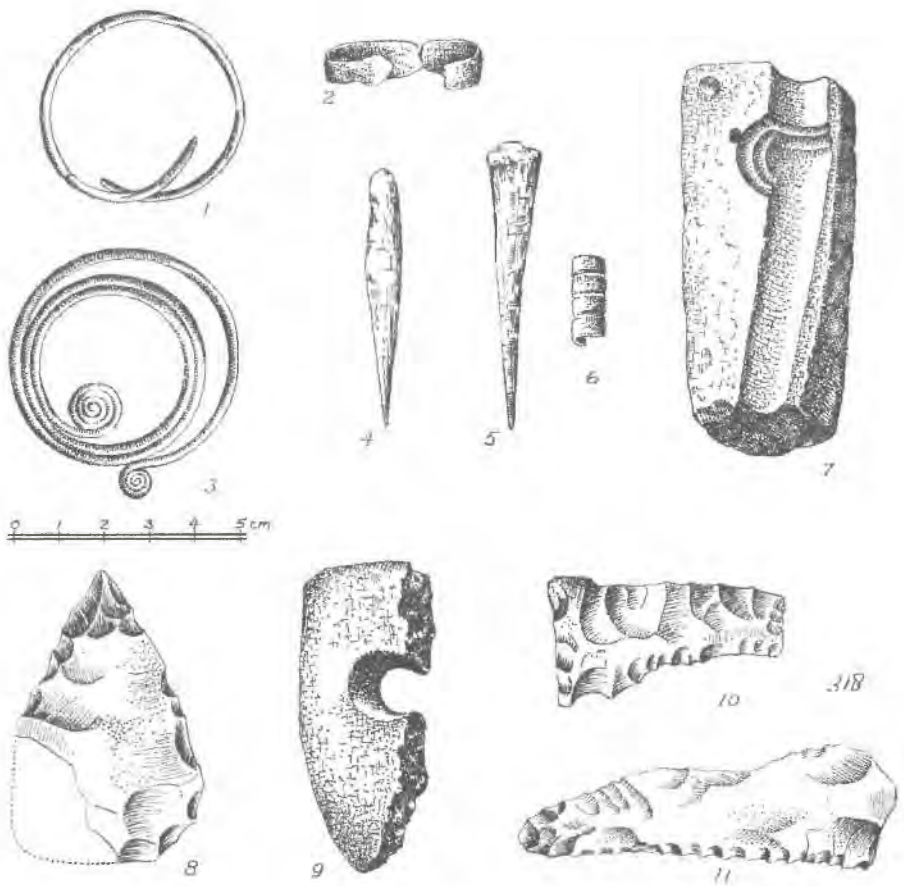


FIG. 318. Finds from the habitation site at Sobkivka near Uman', western Ukraine. **1, 2,** bracelets; **3,** ornament worn at the temples; **4, 5,** bone awls; **6,** bone bead; **7,** stone mold for a socketed celt; **8,** flint point; **9,** stone axe; **10, 11,** flints for sickles. *After* Berezanska and Titenko, 1954.

In this period fortified hill settlements occur. A series of them along the upper Ingulets and the Tjasmin rivers in the district of Kirovograd have been excavated (Terenozhkin, 1952a, 1952b, 1957). The earliest material found in these sites can be attributed to the Bilogrudivka phase, but most of the finds have later affiliations.

Contacts with the Carpathian metallurgical center are indicated by large hoards containing beaten bronze vessels distributed along the upper Dniester: at Niedzieliska (fig. 115), at Kunisovce near Horodenka (Sulimirski, 1938, p. 273; Merhart, 1952, pl. 2; *see* references for the Study of Chronology),



FIG. 319. Bronzes from the hoard of Krekhov near Zholkva, north of Lvov, western Ukraine. **1, 2,** tanged sickles; **3,** bracelet; **4,** short socketed celt with wing decoration; **5,** socketed celt with parallel ridge decoration; **6,** socketed celt with a projecting socket; **7,** socketed chisel; **8, 9,** socketed celts with letter V decoration. Scale approx. 1/3. *After* Żurowski, 1949.

and at Jezierzany near Tlumach (Sulimirski, 1938, p. 271). There are also a number of hoards reported containing a great number of socketed celts, socketed chisels, and tanged sickles. A typical hoard was found in Krekhov near Zholkava, north of Lvov (fig. 319).

Iron artifacts appeared in the Niedzieliska hoard, but during this whole period, which is Urnfield IV in central Europe, iron objects were merely imports, a novelty only very gradually adopted by the local people.

With the beginning of the Iron Age the Cimmerian and Scythian movements ended the relatively quiet life of the North Carpathian people during the Bronze Age.

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VIII

THE NORTH PONTIC OR CIMMERIAN CULTURE

A. GENERAL CHARACTERISTICS

Moving eastward to the Black Sea area, we encounter a cultural group entirely different from that in central Europe or those in the orbit of the central European realm. Its metal culture was based on the copper ores of the Caucasus, and it was continually stimulated by influences from the south, chiefly from western Transcaucasia and the northern central Caucasus where the richest Caucasian Bronze Age cultures were distributed; (a) the Colchidic, along the eastern and southeastern Black Sea coast and into western Georgia as far as the present city of Tbilisi, and (b) the Koban, in the upper Terek basin. The latter is the Bronze Age predecessor of the famous Early Iron Age Koban culture. Since the North Pontic people had reciprocal relations with these two groups, Koban and Colchidic metallurgical developments and bronze types may be cited as one means of determining the chronology of the North Pontic area.

The culture in the northwestern Caucasus had a direct cultural impact on its northern and northwestern neighbors in the steppe. On the west its sphere of influence ended in the western Ukraine and in eastern Rumania, where it encountered products from eastern central Europe. Only in the beginning of the Early Iron Age did Caucasian items cross these boundaries and leave noticeable traces in the later development of central European forms.

Graves, habitation sites, stone and metal artifacts, and other related finds were distributed all over the northern shores of the Black Sea, from the lower Danube in the west to the Caucasus in the southeast and the Volga delta in the northeast (fig. 320).

The North Pontic culture in its Pit-grave and Early Kuban stage was a great reservoir through which erupted the Kurgan migrations, covering almost all of Europe and causing the formation of new Bronze Age cultures. The subsequent Catacomb-grave and Middle Kuban complex continued the North Pontic culture during the postmigratory period.

The widely spread and flourishing Catacomb-grave culture of the beginning of the second millennium B.C. was soon threatened by another rising culture, the Timber-grave or Srubna group. From about the eighteenth century B.C. to the end of the Bronze Age it steadily pressed the North Pontic culture back from the northeast in an effort to reach the Black Sea. The first traces of Timber-grave people between the Dnieper and the Sea of Azov are evident long before the middle of the second millennium. The entire Donets and Don basins were gradually occupied by the Timber-grave people. The North Pontic culture persisted in the lower Dnieper basin, in the Crimea, and in the northwestern Caucasus. At the end of the second millennium B.C. signs of the Timber-grave people also appeared in the lower Dnieper Basin. The Crimea and the area east of the Sea of Azov, the Taman Peninsula especially, longest preserved North Pontic cultural traits. Thus, the culture which at the beginning of the second millennium B.C. was expansive and influential was finally overshadowed by another rapidly growing steppe culture. The new culture took possession of the best lands of the North Pontic steppe zone and assimilated the local inhabitants or forced them to take refuge in remote peninsulas. The cultural achievements of the North Pontic people, however, were not entirely lost. A great many cultural elements were inherited by the Timber-grave people, whose own culture became hybrid in character.

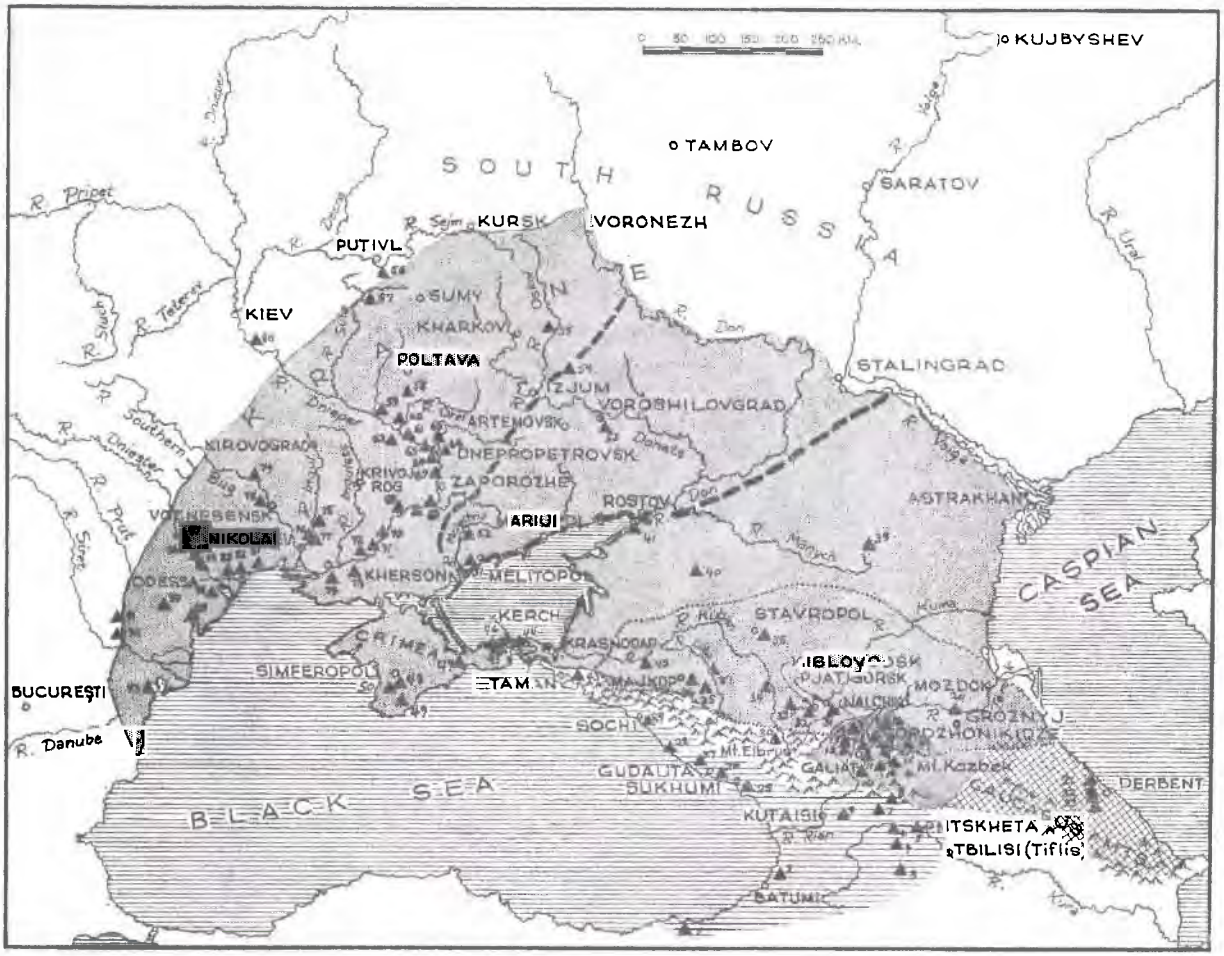


FIG. 320. Distribution of the North Pontic culture between the lower Danube and the Caucasus Mts., the Colkhidic along the eastern shores of the Black Sea, the Koban in the central Caucasus and the Kajakent in the eastern Caucasus. The dotted line shows the distribution of the North Caucasian variant of the Kurgan culture in the early second millennium B.C.

Key to Fig. 320:

1. Ordu hoard
2. Chorokh hoard
3. Beshtasheni cemetery
4. Trialeti cemetery
5. Samtavro cemetery
6. Kvemo-Sasireti hoard
7. Kvasatali cemetery
8. Tli cemetery
9. Sachkhere cemetery
10. Kamunta cemetery
11. Faskau cemetery
12. Kumbulta cemetery
13. Verkhnjaja Rutkha cemetery
14. Dergavs finds
15. Chmi (Beakhni Kup) cemetery
16. Koban cemetery
17. Dzaudzhikau finds
18. Zilgi mold
19. Lesken finds
20. Pervomajskoe cemetery
21. Khorochoj cemetery
22. Berekej cemetery
23. Manas cemetery
24. Chokh cemetery
25. Esheri cemetery
26. Pilenkovo hoard
27. Sukhumi finds
28. Pidsunda hoard
29. Sochi find
30. Agur hoard
31. Pjatigorsk cemetery
32. Kislovodsk cemetery
33. Borgustanskaja Stanitsa hoard
34. Urup find
35. Kostromskaja hoard
36. Andrjukovskaja hoard
37. Konstantinovka cemetery
38. Stavropol' cemetery
39. Tri Brata cemetery
40. Privol'noe hoard
41. Kobjakovo habitation site
42. Bekeshevskaja Stanitsa hoard
43. Krymskaja Stanitsa hoard
44. Kamenka habitation site
45. Kimmerik habitation site
46. Glejki habitation site
47. Chelki habitation site
48. Krasnaja Gora cemetery
49. Salgir River cemetery
50. Kazanki cemetery
51. Veseloe cemetery
52. Akkermen, Troitskoe, and other cemeteries on the river Molochna
53. Lugansk cemetery
54. Rajgorodok hoard
55. Shelaevo habitation site
56. Gorodok habitation site
57. Zhukivtsy habitation site
58. Bondarikha habitation site
59. Nadporizhka habitation site
60. Dzvonetskaja Balka habitation site
61. Varenychevka habitation site
62. Avraamovka hoard
63. Kichkas cemetery
64. Natalivka cemetery
65. Khoroshevo habitation site

66. Shevchenko Garden habitation site in the city of Dnepropetrovsk
67. Chervonyj Kut cemetery
68. Belozerskij Liman habitation site (Timber-grave affinities)
69. Babino habitation site
70. Novo-Aleksandrovka habitation site
71. Zmeevka habitation site
72. Berislav hoard
73. Lukjanovskoe cemetery
74. Tsareva Mogila
75. Kozorezovo hoard
76. Chtetkovo hoard
77. Nikolaev hoard
78. Novogrigorjevka hoard
79. Sabatinivka habitation site (Timber-grave affinities)
80. Podgortsa find
81. Rybakovka (Adzhijask) hoard
82. Usatovo habitation site and cemeteries
83. Koblevo hoard
84. Sukleja cemetery
85. Krasnomajatsk workshop (Timber-grave affinities)
86. Ternovka cemetery
87. Parkany cemetery
88. Shabalat cemetery
89. Pavlovka hoard
90. Borodino hoard
91. Stoikani habitation site
92. Folteşti habitation site
93. Hamangia cemetery (stela)

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Avraamovka hoard – 62
Babino habitation site – 69
Bekeshevskaja Stanitsa hoard – 42
Belozerskij Liman habitation site (Timber-grave affinities) – 68
Berekej cemetery – 22
Berislav hoard – 72
Beshtasheni cemetery – 3
Bondarikha habitation site – 58
Borgustanskaja Stanitsa hoard – 33
Borodino hoard – 90
Chelki habitation site – 47
Chervonyj Kut cemetery – 67
Chmi (Beakhni Kup) cemetery – 15
Chokh cemetery – 24
Chorokh hoard – 2
Chtetkovo hoard – 76
Dergavs finds – 14
Dzvonetskaja Balka habitation site – 60
Dzaudzhikau finds – 17
Esheri cemetery – 25
Faskau cemetery – 11
Folteşti habitation site – 92
Glejki habitation site – 46
Gorodok habitation site – 56
Hamangia cemetery (stela) – 93
Kamenka habitation site – 44
Kamunta cemetery – 10
Kazanki cemetery – 50
Khorochoj cemetery – 21
Khoroshevo habitation site – 65
Kichkas cemetery – 63
Kimmerik habitation site – 45
Kislovodsk cemetery – 32
Koban cemetery – 16
Kobjakovo habitation site – 41
Koblevo hoard – 83
Konstantinovka cemetery – 37
Kostromskaja hoard – 35
Kozorezovo hoard – 75
Krasnaja Gora cemetery – 48
Krasnomajatsk workshop (Timber grave affinities) – 85
Krymskaja Stanitsa hoard – 43
Kumbulta cemetery – 12
Kvasatali cemetery – 7
Kvemo-Sasireti hoard – 6
Lesken finds – 19
Lugansk cemetery – 53
Lukjanovskoje cemetery – 73
Manas cemetery – 23
Nadporizhka habitation site – 59
Natalivka cemetery – 64
Nikolaev hoard – 77
Novo-Aleksandrovka habitation site – 70
Novogrigorjevka hoard – 78
Ordu hoard – 1
Parkany cemetery – 87
Pavlovka hoard – 89
Pervomajskoe cemetery – 20
Pidsunda hoard – 28
Pilenkovo hoard – 26
Pjatigorsk cemetery – 31
Podgortsa find – 80
Privol'noe hoard – 40
Rajgorodok hoard – 54
Rybakovka (Adzhijask) hoard – 81
Sachkhere cemetery – 9
Sabatinivka habitation site – 79
Salgir River cemetery – 49
Samtavro cemetery – 5
Shabalat cemetery – 88
Shelaevo habitation site – 55
Shevchenko Garden habitation site in the city of Dnepropetrovsk – 66
Sochi finds – 29
Stavropol' cemetery – 38
Stoikani habitation site – 91
Sukhumi finds – 27
Sukleja cemetery – 84
Ternovka cemetery – 86
Tli cemetery – 8
Tri Brata cemetery – 39
Trialeti cemetery – 4
Troitskoe and other cemeteries in the river Molochna – 52
Tsareva Mogila – 74
Urup find – 34
Usatovo habitation site – 82
Varenychevka habitation site – 61
Verkhnjaja Rutkha cemetery – 13
Veseloe cemetery – 51
Zhukivtsy habitation site – 57
Zilgi mold – 18
Zmeevka habitation site – 71

The expansion of the Timber-grave and the contraction of the North Pontic culture have been recognized only recently, chiefly after extensive excavations in the lower Dnieper basin and around the Sea of Azov. These excavations uncovered hundreds of graves in kurgans of different periods ranging from the Pit-grave to the Scythian and Sarmatian (Terenozhkin, 1960; Vjazmitina, Illinska, Pokrovska, Terenozhkin, Kovpanenko, 1960; Klejn, 1960). The new excavations largely supplemented the materials excavated at the turn of the century by Gorodtsov (Gorodtsov, 1905a, 1905b, 1907a, 1907b). The new finds made possible the appearance of Popova's concisely written monograph (1955; in Russian) devoted to the Catacomb-grave culture. New light on the relationships between the Timber-grave and the North Pontic cultures was shed in another monograph dealing with the Timber-grave culture by Krivtsova-Grakova, also in 1955. Before 1955, or generally before the extensive post-World War II excavations,

the North Pontic culture of the Bronze Age was in complete darkness. The Timber-grave culture was believed to have occupied the whole North Pontic area. Even now, no surveys or monographs have appeared which cover the whole North Pontic Bronze Age. Only its early stage, the Catacomb-grave period, is well known.

The term "Catacomb-grave culture" is used by the Russian and Ukrainian archaeologists in a rather broad sense, covering the whole time span from the end of the Pit-grave stage to the middle of the second millennium B.C. or even later. My suggestion is that the "Catacomb-grave culture" should not be thought of as a culture but as a period. The graves in pit-caves, termed catacombs, were dominant only in the first centuries of the second millennium B.C., and even then not everywhere: in the Kuban River area and the southeastern Crimea rectangular house-grave burials continued. The pit-cave type of burial was not a very long-lasting fashion, for after about the eighteenth century B.C. catacombs began to disappear, and the people returned to the old tradition of building rectangular stone cist-graves, imitating houses, usually with specially prepared stone slabs; this remained the most characteristic type of tomb architecture during most of the Bronze Age. That the catacomb-graves still existed in the twelfth century B.C. or later, as Sulimirski assumes in his paper on the Cimmerian problem (Sulimirski, 1959), is a misunderstanding which results from confused chronological ideas. The assumption that the faïence beads found in the classical Catacomb-graves (cemetery of Malaja Kamyshevakha, Kurgan No. 4, grave No. 2: Gorodtsov, 1905b, p. 294) must be dated to the fourteenth century B.C. is an error, continually repeated, which contributes to the confusion about the duration of the Catacomb-grave group. It is based on the belief that all faïence beads came to Europe from Egypt in that century (Popova, 1955, p. 34). In my opinion, faïence beads from the catacomb-graves precede the early Únětician, the upper Vistula (Tomaszów-Mierzanowice), and the Usatovo faïence beads. If we date the Catacomb-grave period from 1400 to 1200 B.C., then we have to accept its parallelism with the Middle Bronze Age of central Europe, the Tumulus culture, with the Komarov period of the North Carpathian culture, with Monteoru II, with the classical Timber-grave culture of the Pokrovsk phase, and with the Sejma phase of the Turbino culture, which is simply impossible. This would be contrary to all data provided by stratigraphy, intercultural relationships, and the typology of finds. Chronological structures cannot be built on a few beads, in this case, on faïence beads which had been circulating in Europe for more than 500 years.

The North Pontic culture was spread over the area north of the Black Sea. Although its distribution area contracted markedly, its principal seats remained bound to the Black Sea shores. Thus the name "North Pontic" fits all its periods from its flowering to its decline, covering the pit-cave (catacomb) and stone-cist periods.

The lands occupied by the North Pontic people were the steppes, but the pattern of vegetation is not identical in all parts of the distribution area. The northern zone is a forest-steppe belt; west of the Dnieper lies the forest-steppe belt of the North Carpathian sphere. People set their villages on the first terraces of the river, since in the Dnieper and Don basins, for instance, usually only the first terrace of the river was level and unforested; the second and third river terraces were either sandy or covered by deciduous forestation and hilly. Settlements were also found on peninsulas and islands. As a rule, all habitation sites were near a water supply and small patches of deciduous trees. The cemeteries, barrows in a long line, extended into the steppe land. Several habitation sites recently excavated on the Kerch Peninsula were located in a basin between two hills, apparently in order to ensure natural shelter from the northeast winds (sites of Kamenka and Glejki: Veselov, 1957, pp. 35-39).

The excavated habitation sites with house remains show that houses in most cases were arranged in one or two parallel rows along the riverbank. This settlement pattern was clearly in evidence at the site of Nadporizhka on the banks of the Dnieper River near the place where the Sula River joins it, where nine dwellings with stone foundations arranged in a row were discovered. Near this site, at Dzvonetskaja Balka, 18 dwellings in two parallel rows appeared (Dobrovol's'kij and Kanivets', 1957, p. 101).

In the habitation sites there were remains of stone foundations or stones for supporting the clay wall, as well as stone slab or baked clay floors. Reconstructions of the North Pontic houses have not yet been made, but the remains of stone foundations are sufficient to indicate that the North Pontic house type was different from that of the Timber-grave culture, where the remains show a semisubterranean type.

One of the most important habitation sites was excavated by A. V. Dobrovolskij in 1954 at the village of Babino (in the spot called Babino III) in the district of Kherson (Dobrovolskij, 1957). The site was located on the terrace of the Konka River, a tributary of the lower Dnieper. The cultural layer was 0.5 to 1.0 m deep and yielded finds from one period. The site is noteworthy for its preservation of several dwellings. There were traces of two different types of houses: one was semisubterranean and oval in plan, 5 × 8 m in size; the other was above ground and was long and rectangular in plan, 8 × 3.3 m in size (fig. 321). Both types had clay walls; in some places the rectangular houses retained their walls still standing in a vertical position, 25 to 30 cm thick and 2 m high. The remains of wooden posts show that posts were used as part of the wall construction. In the semisubterranean type, postholes were concentrated in the southwestern part of the dwelling floor, whereas in the rectangular type the postholes were arranged in a row, with a corridor-like entrance on the southeastern side and a hearth in the middle. Other hearths were located outside of the house. Between the two dwellings was a platform of tamped clay, 3.15 × 3.15 m in size, with a pit and two hearths located in it.

Zmeevka, a habitation site near Berislav in the district of Kherson, excavated in 1951, revealed two distinct strata, the upper stratum belonging to the Middle Ages, the lower to the Bronze and Early Iron Ages (preliminary report: Burakov, 1955). In the upper part of the lower layer iron knives were present along with pots and remains of dwellings which had stone foundations and clay walls. The house form was rectangular, trapezoidal, circular, or semicircular. The lower part of the lower stratum at Zmeevka yielded a Bronze Age assemblage of finds and no iron: bronze awls, pins, and knife blades, plus perforated stone axes, maceheads, pestles, rubbing stones, clay discs, and potsherds with impressions of millet grains. The pots had been decorated with ridges and incisions. Two limestone house foundations, rectangular in plan, were constructed of three or four rows of stones and had been sunk 60 cm into the ground: one house was 4.2 × 5.4 m, the other was 6.0 × 7.2 m. This habitation site was separated from the cemetery by a semicircular stone wall. Some graves were within stone rings; the skeletons lay on their sides, in the contracted position, either in low pits or above the ancient surface. The graves were roofed with stones.

Millet and barley grains and their impressions on pottery, as well as flint and copper sickles, pestles, quern stones indicate agricultural activity; the bones of cattle, sheep, goats, horses, pigs, and dogs are evidence of animal domestication. Fishing and hunting served as secondary sources of livelihood. In the above-mentioned site of Babino in the district of Kherson the distribution of domesticated animals judging from bones was the following: 32 per cent cattle bones, 30 per cent sheep and goat, 12 per cent pig, 10 per cent horse, and 6 per cent dog bones. There were only a few bones of wild animals, among which those of hare and bear were identified. The Kobjakovo settlement on the high bank of the lower Don near Rostov, which yielded a 5.5 m thick "Pre-Scythian" layer, several horizons of which are datable by early and late Catacomb pottery has shown the greatest percentage of dog, sheep, and goat bones (excavated by A. A. Miller, in 1924-1925: Miller, 1926). In the lower part of the cultural layer, beyond 3 m from the top, there were 36.5 per cent dog, 27.5 per cent sheep or goat, 12 per cent cattle, 12 per cent horse, and 12 per cent wild animal bones. In the upper part, about 2.5 to 2.7 m from the top, animal bones were distributed in the following percentages: sheep and goat 34 per cent, dog 27 per cent, cattle 15 per cent, horse 7.5 per cent, and wild animal 16.5 per cent. The horse was certainly not undomesticated, as is shown by an antler cheekpiece found in the cultural layer of the Usatovo settlement (Passek, 1949, p. 191). Horse figures engraved on stone slabs suggest that the horse played an important role in religion. Farming and cattle and horse breeding were of primary importance all over the northern

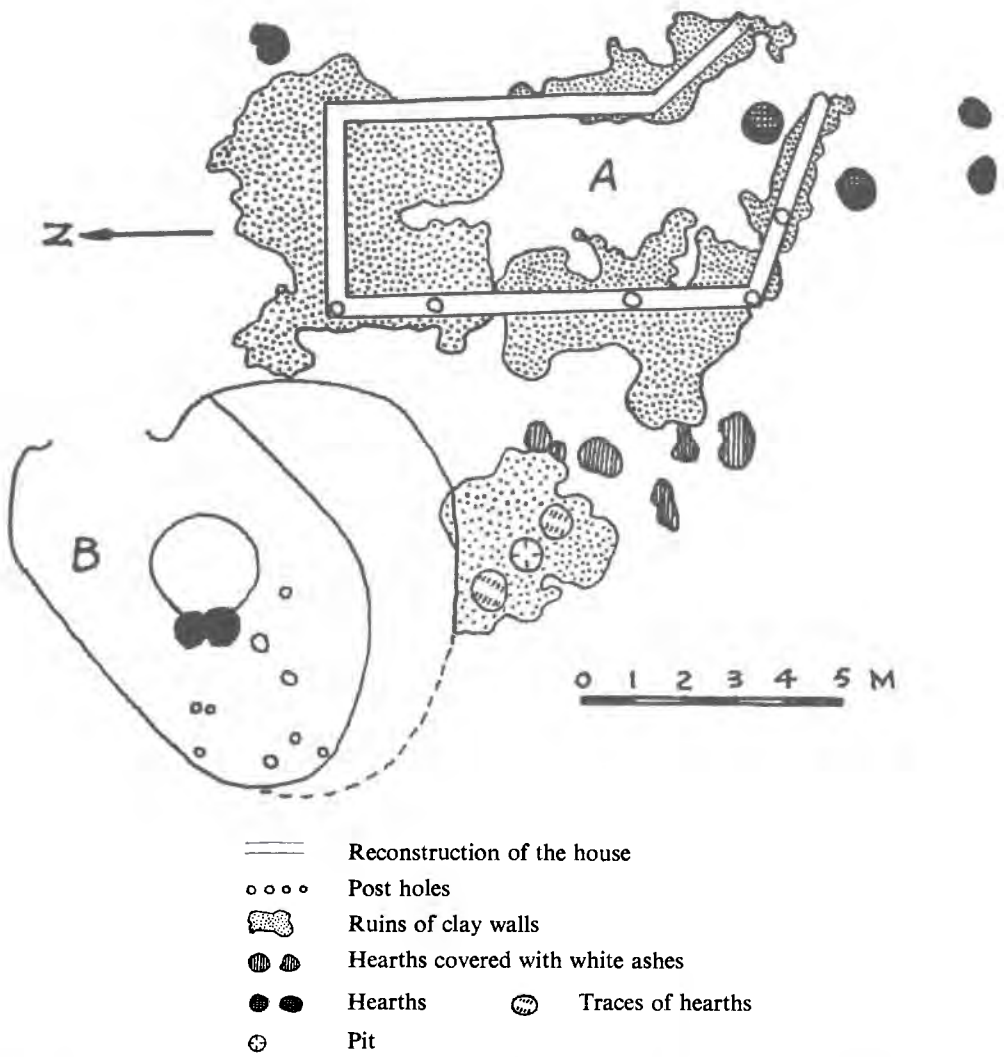


FIG. 321. House plans of the habitation site Babino III, district of Kherson, lower Dnieper area. *A*, above-ground; *B*, semisubterranean. *After* Dobrovolskij, 1957.

Pontic steppe area and throughout the Bronze Age. The number of excavated sites, however, is too small to indicate differences in economy between certain geographic areas and periods.

Metallurgy seems to have been common knowledge to this people; there were special centers of metallurgy which served to stimulate the industry. The earliest and most important one was in the western and central Caucasus. The upper Terek, upper Kuma, and upper Kuban basins yielded considerable numbers of copper artifacts dating from the end of the third millennium B.C. and later. This center is usually called the "Kuban center of metallurgy" (Iessen, 1935a, 1947, 1951), its focus lay between Nal'chik, Kislovodsk, and Pjatigorsk, but it also embraced the whole western and northwestern part of the Caucasus; on the south it adjoined the vigorous center of western Georgia and in the northwest it extended along the Black Sea to the Crimea. From the end of the third millennium B.C. the Caucasian center is distinguished for its creativity and the powerful influence which it exercised on the northern provinces. The Pit-grave and Catacomb-grave cultures along the lower Don, Donets, and lower Dnieper obtained their metal artifacts mainly from the Kuban center, a situation which remained unchanged in later periods as is shown by many hoards and isolated finds in the Ukraine.

The density of metal finds in this particular area, clay and stone molds of various periods, founders' hoards, fragments of crucibles and copper slag, copper ingots, and quantities of copper or bronze objects cast from one mold indicate the existence of local metallurgy. Not a great many molds have been found, but those surviving date from the end of the second millennium B.C. One two-part stone mold for an axe was found near the village of Zilgi in the district of Ordzhonikidze, formerly Vladikavkaz (pl. 89), and a similar one is in the Museum of Majkop (Iessen, 1951, p. 103). Traces of broken clay molds show that during the early stages of metallurgy in the Caucasus *cire perdue*, one-piece molds, were used which had to be destroyed after casting. The models for the metal artifacts were made of wax, coated with a thick layer of clay, and baked. The wax flowed out through a hole left for that purpose on one side of the mold; the copper or bronze, molten in a clay crucible, was poured in through the same hole.

The early stages of the metal age in the Caucasus did not yield true tin-bronze. Analyses show that local ore – copper mixed with small quantities of arsenic, iron, and sometimes of nickel and sulphur – was used. The latter indicates the existence of copper mining. There are no sources of tin in the Caucasus except for one insignificant place in the northern Caucasus (Magakian, 1958, p. 175).

Metal finds from the Kuban center as yet have not been sufficiently analyzed, but chemical analyses have been made of some objects from the end of the third or beginning of the second millennium B.C. indicate a composition of 95 to 98 per cent copper and no tin or antimony. As a representative of the composition of metal from the middle of the second millennium B.C., a large pin with double-spiral plate head from Kumbulta in the central northern Caucasus – the same type as one from Verkhnjaja Rutkha, figure 337, *A*, *9* – was chosen for chemical analysis. The result was: 96.61 per cent copper and 3.41 per cent arsenic (*Verhandlungen der Berliner Ges. für Anthr., Ethn. und Urgeschichte*, 1891, p. 354; Krupnov, 1951, p. 58).

In western Transcaucasia arsenical copper was very probably alloyed with antimony as early as the end of the third and the beginning of the second millennium B.C. The finds of Sachkhere in Abkhazia in western Georgia were composed of 92 to 98 per cent copper, 0.78 to 6 per cent arsenic and 0.35 to 2.6 per cent antimony. Bronzes from about the middle of the second millennium B.C. had over 12 per cent antimony. Arsenical copper with an alloy of antimony has a beautiful silvery color and a fine lustre; it was therefore used widely in the manufacture of ornaments. Weapons continued to be made of copper ore that contained arsenic, as they yielded a harder and tougher metal. The proportion of arsenic varied as different copper ore deposits were employed. A study of Georgian metallurgy by Abesadze, Bakhtadze, Dvali, and Dzhaparidze (1958) has shown that the effect of using arsenic and antimony was already realized during the early part of the second millennium B.C.

Bronzes from western Transcaucasia dating from the thirteenth to twelfth centuries B.C. are of a somewhat different composition. The objects analyzed from the earliest flat graves in the cemetery of Samtavro in Georgia in addition to copper, had from 0.22 to 5.34 per cent tin, from 0.24 to 3.09 per cent lead, from 0.88 to 3.08 antimony, and from 0.25 to 1.5 arsenic. The Samtavro rapier (fig. 53, *1*) is also of tin bronze (Abesadze *et al.*, 1958, p. 106). Tin bronze was employed in the manufacture both of weapons and ornaments. In the northern Caucasus, however, tin and antimony alloys were not yet in use at the same time. The study of Late Bronze Age objects from western Georgia has indicated that tin bronze was mostly employed, although in some parts of the country copper ore containing arsenic was still in use. Artifacts of tin bronze are abundant in Abkhazia, Racha, and also in Kartli, Mstkheta, and Kakheti in eastern Georgia. North Caucasian objects from the end of the second to the beginning of the first millenium B.C. have not yet been studied.

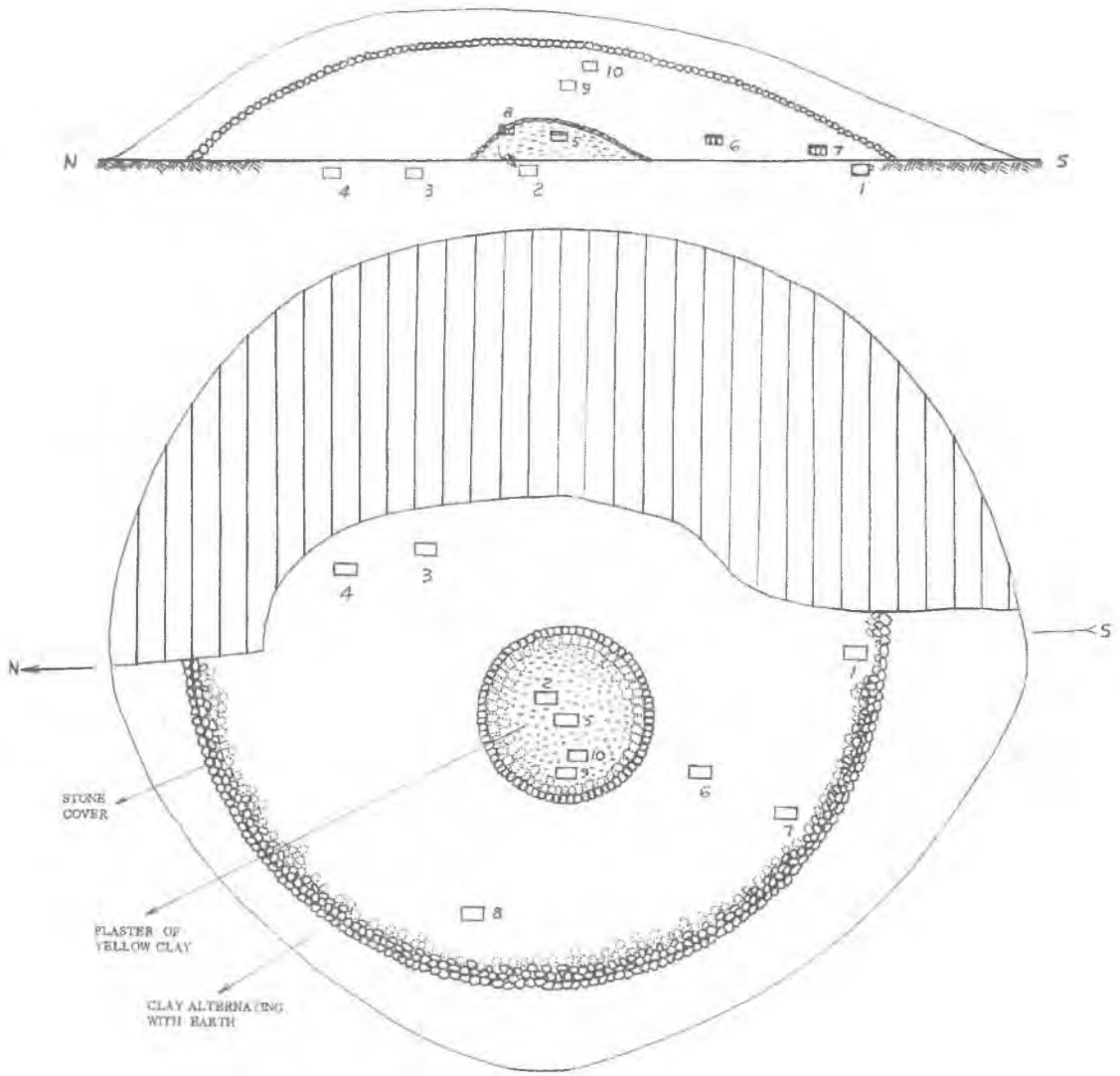


FIG. 322. *A*, Cross-section and plan of the barrow "Tsareva Mogila" near Kherson. **1, 4,** rectangular graves of the Catacomb-grave period; **5-8,** Bronze Age stone cists; **9, 10,** upper graves with no finds. *After* Fabritius, 1929.

B. CHRONOLOGICAL CLASSIFICATION

Stratigraphical evidence, particularly abundant in bronze and pottery types from tumuli, and finds which indicate commercial activity are proof of separate cultural phases which can be dated by correlations either with central Europe or with Transcaucasia and the Near East.

The North Pontic kurgans rarely contained only one grave. Usually there were from four or five to 30 or more from different periods ranging from the end of the third millennium B.C. pit-graves to Scythian or Golden Horde burials. There was a specific Kurgan tradition of burying the dead in an already existing tumulus; because of this super-imposition of one barrow above the other some of the North Pontic kurgans were built as high as 12 m, although the usual height is about 2 m.

As illustrations I shall mention several examples of stratified tumuli from the lower Dnieper area and the Crimea. The Tsareva Mogila near Kherson deserves special attention for Bronze Age chronology since it contains ten successive graves belonging to the period between the Chalcolithic and the Late Bronze Age (Fabritius, 1929). It was 12 m high and 98 to 106.5 m across. The first four of the ten graves were in the old surface below the barrow (fig. 322 A, *top*). The grave goods, copper daggers, silver spirals,

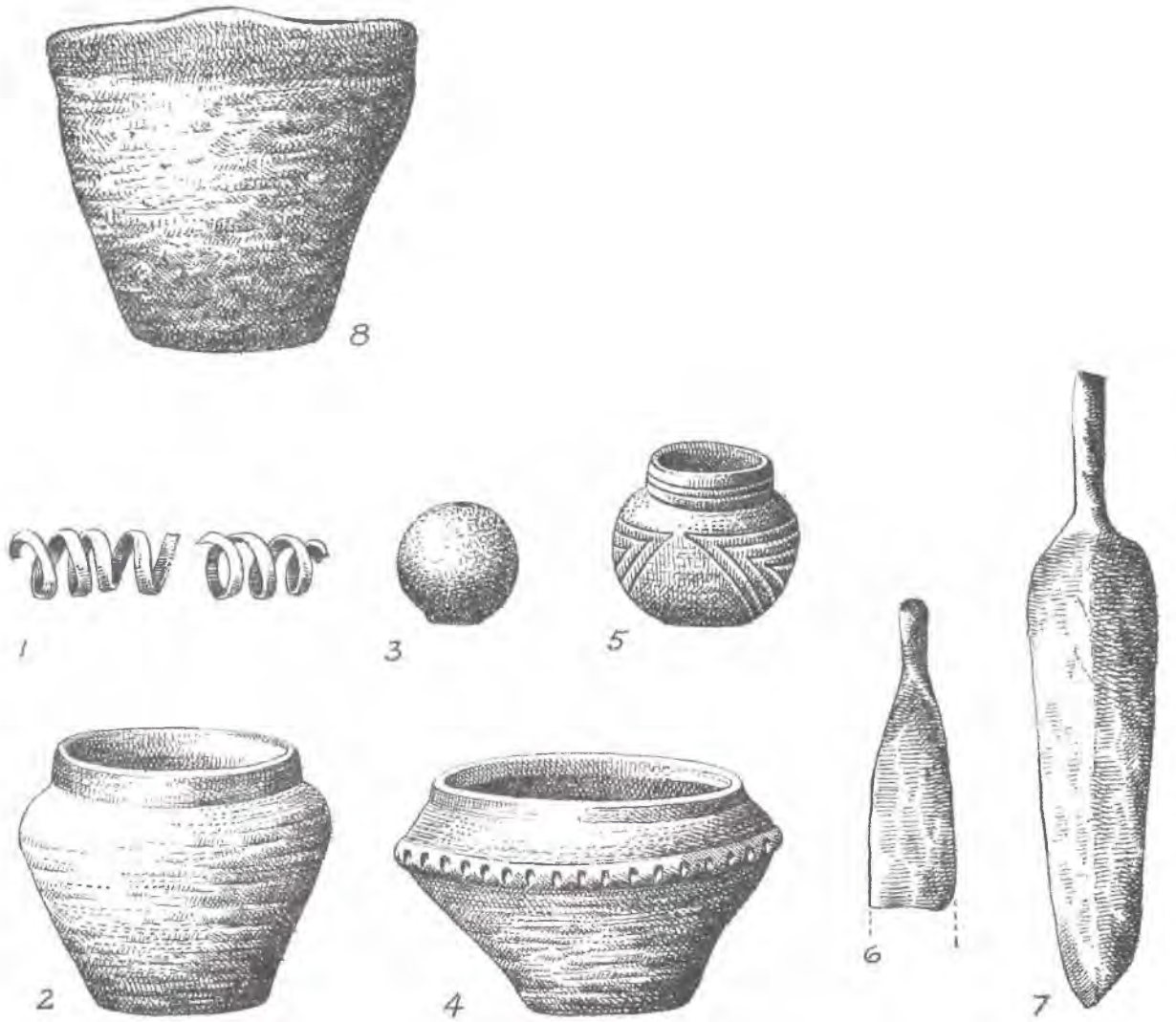


FIG. 322. *B*, Finds from the Tsareva Mogila. **1**, silver spirals from grave No. 2 (central grave); **2, 4**, pots and **3**, a well-polished stone macehead from grave No. 3; **5**, a black vase from grave No. 4; **6, 7**, copper daggers from grave No. 1; **8**, pot from the stone cist grave No. 7 in the barrow. Scale: pots approx. 1/5; macehead approx. 1/4; silver spiral approx. 1/1; daggers approx. 1/2. *After* Fabritius, 1929.

a stone macehead, and pots (fig. 322*B*, *1-7*) in these four belong around 2000 B.C. and are very similar to graves from the north Caucasian Middle Kuban period. Graves Nos. 5-10 were in the barrow, each at a different level, and were for the most part in stone cists (fig. 322*A*, *top*). The barrow was solidly covered with stones. Grave No. 5 was in the clay layer in the middle of a ring of large stone slabs. The stratigraphic position clearly shows that this grave is later than Grave No. 2. Grave No. 6, a cist 1.7 × 1.2 m in size and built of stones was in the barrow. The skeleton was contracted; at its knees a wooden vessel with a handle was found. Grave No. 7 was also in the kurgan, in its southern part. This cist-grave was built of stones and covered with two large slabs. The only find here was a large wide-mouthed pot made of black clay and unornamented (fig. 332B, *8*). Grave No. 8 was a rectangluar cist of large stones plastered with soil-tempered clay. The cist was within a ring of quartzite slabs, 1 × 0.6 × 0.12 m in size. The skeleton was extended, and remains of two burned wooden bows and a black vase were found below it. Graves 9 and 10 were in the upper part of the barrow and did not yield any grave goods.

A similar stratigraphic arrangement of graves occurs in the kurgan at Odessa (mentioned in Gim-

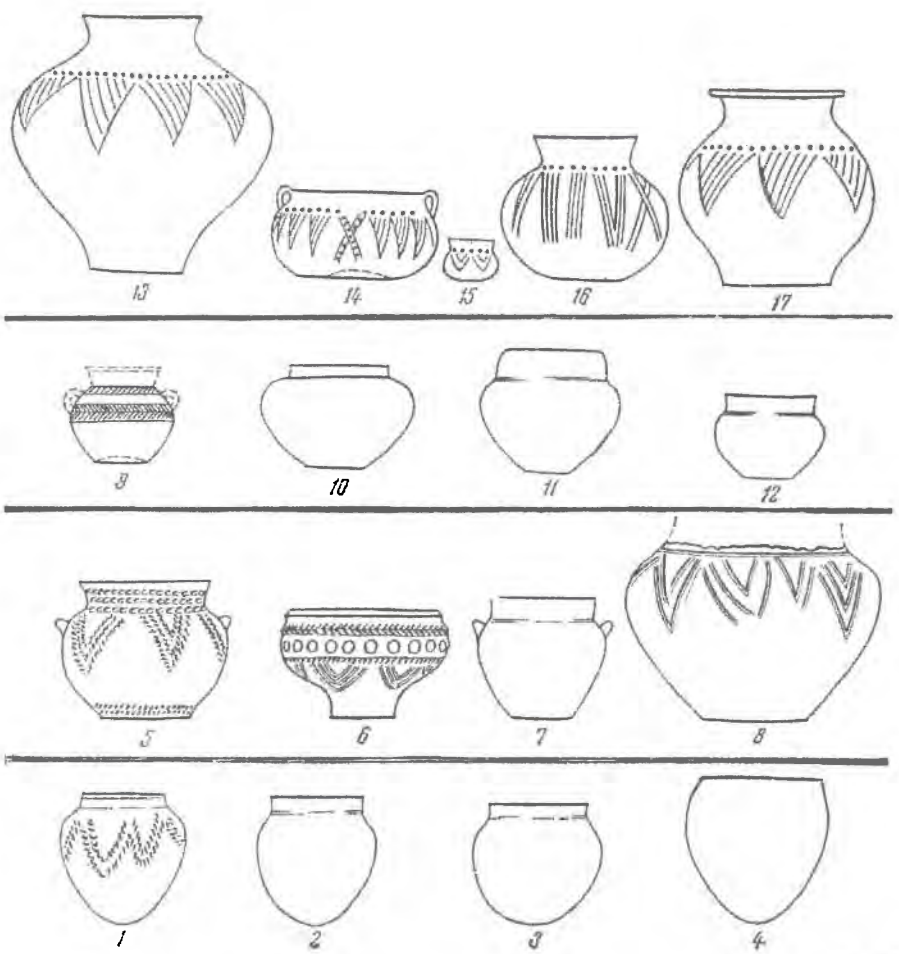


FIG. 323. Basic types of pots stratigraphically and typologically arranged from the tumuli in the valley of the Salgir River in the Crimea. **1-4,** from the pit-graves; **5-10,** from the secondary pit-graves belonging to the Catacomb period; **9,** from the stone cist placed above the pit-grave of the Catacomb period; **11, 12,** stratigraphically uncertain Bronze Age pots; **13-17,** from the later graves of the Kizil-Koba period. *After* Shults and Stoljar, 1958.

butas, 1956, pp. 85-88) which yielded 30 graves ranging from pit-graves to stone cist graves. In this area west of the lower Dnieper between the Catacomb-graves and the cist-graves, graves with Usatovo ware appear. The Odessa tumulus is a stratigraphical backbone for chronology of the steppe zone west of the Dnieper.

From stratigraphy it can be seen that burial rites continued on similar lines for a fairly long period with only insignificant alterations, that during the Bronze Age graves were either in pits and covered with two or three well prepared flat stone slabs, or were built entirely of stone slabs. The earlier graves contained contracted skeletons, and the later ones extended skeletons.

The Crimean barrows, excavated in 1954 in the valley of the Salgir River near Simferopol, were almost all stratified and have shown the same sequence of graves. The earliest were pit-graves containing pots with rounded bottoms (fig. 323, *1-4*), the next were also pit-graves covered with several slabs, containing ware of Catacomb-grave or Middle Kuban type (fig. 323, *5-8*, *10*), and then come the stone cist graves, usually within rings of stone slabs, containing bulging vessels decorated with bands of striations (fig. 323, *9*). Above these were graves with extended skeletons equipped with Late Bronze Age pots with flat bottoms and with pots of the Kizil-Koba type – large vessels with bulging bellies decorated with hanging striated triangles on the shoulders (fig. 323, *13-17*) from the seventh or sixth century B.C. (Shults and Stoljar, 1958). I shall mention here only a few characteristic examples from this series of barrows, each of which held up to 35 graves.

Barrow No. 6, 2.4 m high and 30 m in diameter, was solidly covered with a layer of stones up to 1 m in thickness. The earliest graves were dug in the ground below the barrow and were covered with slabs. In one of them was found a bulging vessel with a flat bottom and a low clyindrical neck (fig. 323, *10*), a form native to the northern Caucasus. On the level of the roof of these earliest graves stood a large stone cist, built of well-polished slabs, 2.5 × 2.3 m in size (pl. 90, *2*), with its floor solidly covered with river pebbles. Within the cist were found fragments of 30 skeletons, a flint knife, scraper, a perforated diorite axe, a copper awl, rectangular in cross-section, and pots (one of them reconstructed: fig. 323, *9*). All the later graves dated from the Late Bronze Age and the Kizil-Koba period.

Another barrow of interest was No. 11, only 0.7 m high and 16 m across. The earliest graves were pit-graves with children's skeletons and ochre. Considerably higher, in the center of the barrow, was a stone cist built of sandstone slabs and covered with sandstone and limestone slabs, containing a fragment of a stone stela with deep engravings, among which could be discerned a cross within a circle and pits of various sizes (pl. 90, *1*). The grave was lower than the cist and stela. Kizil-Koba graves with extended skeletons were found south of the cist.

Some of the barrows of the same cemetery contained only very Late Bronze Age and Crimean Kizil-Koba period graves. These were usually low stone barrows, but surrounded by a wall built of large stone blocks. The earliest graves were dug in the ground, the later ones were superimposed one above the other (cf. Kurgan No. 8: Shults and Stoljar, 1958, p. 59). Stone cists were out of fashion at the end of the Bronze Age.

Tumuli found north of the Sea of Azov have revealed an entirely different grave sequence (Vjaz'mitina, Illinska, Pokrovska, Terenozhkin, Kovpanenko, 1960; Klejn, 1960). In the district of Melitopol stone cist-graves do not continue throughout the Bronze Age; graves of a Timber-grave (Srubna) character immediately succeed catacomb-graves. Pit-graves are in the center of the tumulus, dug deepest in the ancient surface; then come the catacomb-graves which were dug through the already existing barrow into the ancient surface. Timber-graves are always found above the pit-graves and above the catacombs. One barrow (Kurgan No. 3) from the cemetery of Troitskoe on the Molochna River shows how the tumuli were superimposed one above the other (fig. 324). This tumulus contained 38 graves, of which six were pit-graves (Nos. 3, 5, 8, 13, 32, 33), four were catacombs (Nos. 1, 9, 11, 28), twenty were timber-graves (Nos. 2, 6, 7, 10, 12, 14, 15, 17-21, 24, 26, 29, 31, 34, 36-38), and eight were not identified. Timber-grave people constructed only very low barrows. Indeed, almost all these tumuli which were re-used by the newcomers are very low, although they contain a great number of graves. Timber-graves are sometimes dug into the catacombs. In the Molochna River group at the collective farm "Akkermen I", grave No. 6 in kurgan No. 10 was a Timber-grave type. It was dug into the catacomb in the center of the tumulus. The skeleton was contracted, lying on the left side, and equipped with a pot (fig. 325, *1*) and a perforated bone pendant (fig. 325, *2*), which places the date of the grave parallel to the early Únětice period in central Europe and the Usatovo and early Monteoru periods west of the Black Sea. Thus, the sequence of developmental stages of the North Pontic culture northwest of the Sea of Azov was interfered during the period corresponding to the Early Bronze Age in central Europe.

The North Pontic culture of the second millennium and the beginning of the first millennium B.C can be classified into two main periods: A, the Catacomb-grave period which covers the first two or three centuries of the second millennium; and B, the Post-Catacomb period, which starts somewhere about 1800/1750 B.C. and continues until the disintegration of the culture. Both periods are divisible chiefly on the basis of distribution of Caucasian bronzes, into a series of chronological phases.

1. *The Catacomb-grave period, ca. 2000 – ca. 1800/1750 B.C.*

The "Catacomb-grave" period is here used as a more or less general label for a period and not just for the graves in pit-caves. For details of the peculiar pit-cave burials and their inventories (copper daggers,

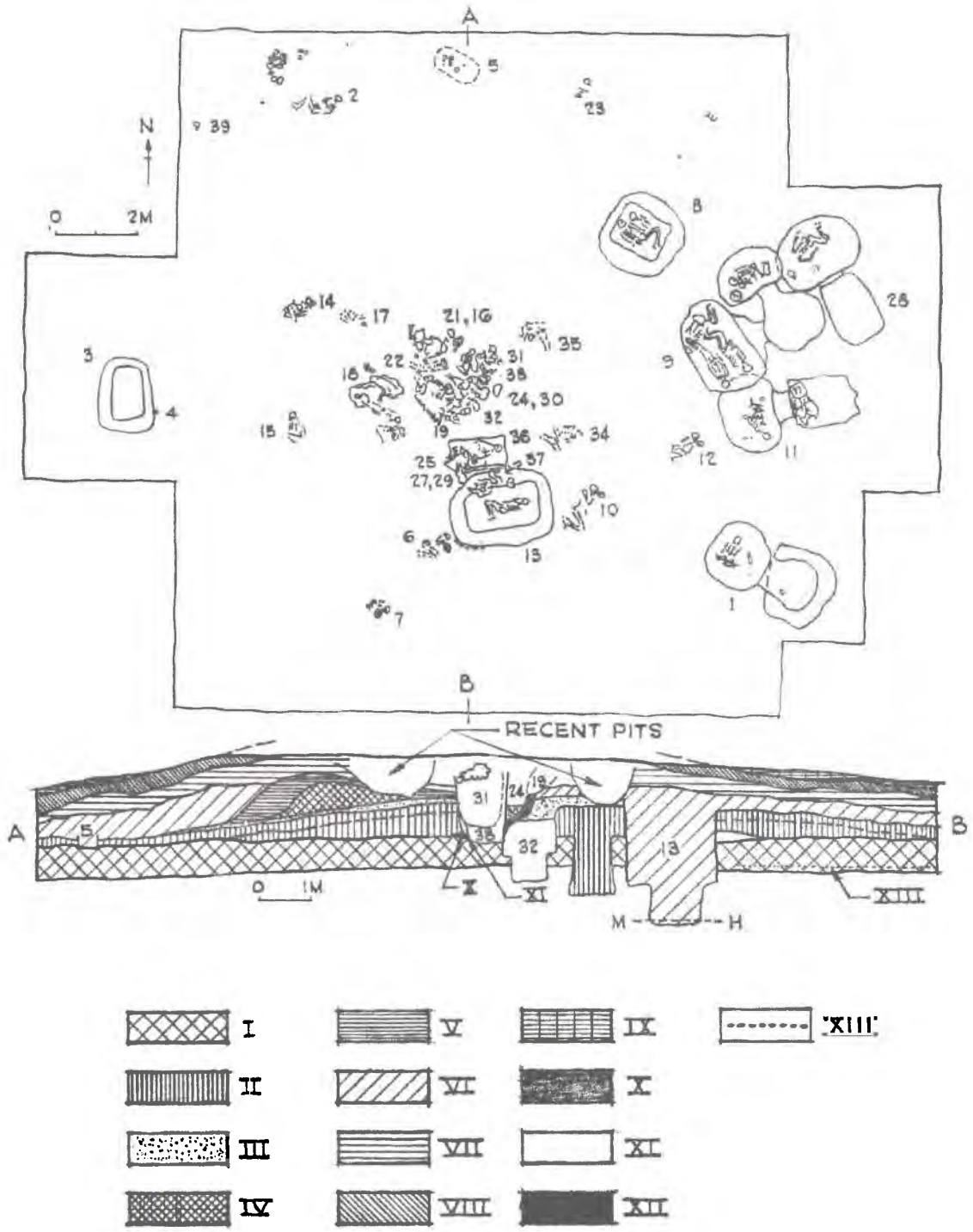


FIG. 324. Plan and section of kurgan No. 3 near the village of Troitskoe on the river Molochna. Key: **1-39,** graves: **1, 9, 11, 28,** catacomb-graves; **2, 6, 7, 10, 12, 14, 15, 17-21, 24, 26, 29, 31, 34, 36-38,** timber-graves; **3, 5, 8, 13, 32, 33,** Neolithic or Chalcolithic pit-graves; others not clear. *I,* dark brown or black soil, ancient surface; *II,* first barrow of dark brown soil; *III,* clay layer above grave No. 32; *IV,* black soil layer; *V,* yellowish clay – the first barrow above grave No. 13; *VI,* black and loamy soil, the second layer of the barrow above grave No. 13; *VII,* grayish loamy soil, the third layer of the barrow above grave No. 13; *VIII,* new humus layer; *IX,* light gray deposit; *X,* loamy soil from grave No. 33; *XI,* black soil, filling of the pit; *XII,* black soil, filling of the robbers' pit; *XIII,* shell layer, M-H level of subsoil water. *After* Klejn, 1960.

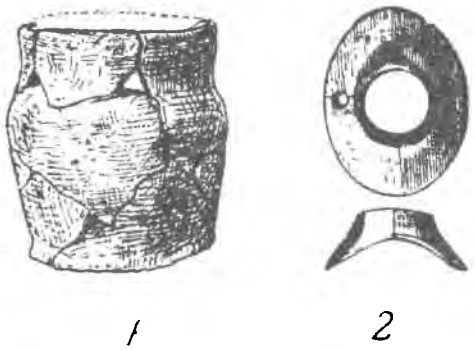


FIG. 325. **1,** pot and **2,** bone pendant from Kurgan No. 7, grave 4 of the tumuli group Akkermen I at the river Molochna. Scale approx. 1/2. *After* Vjaz'mitina, Illinska, Pokrovska, Terenozhkin, and Kovpanenko, 1960.

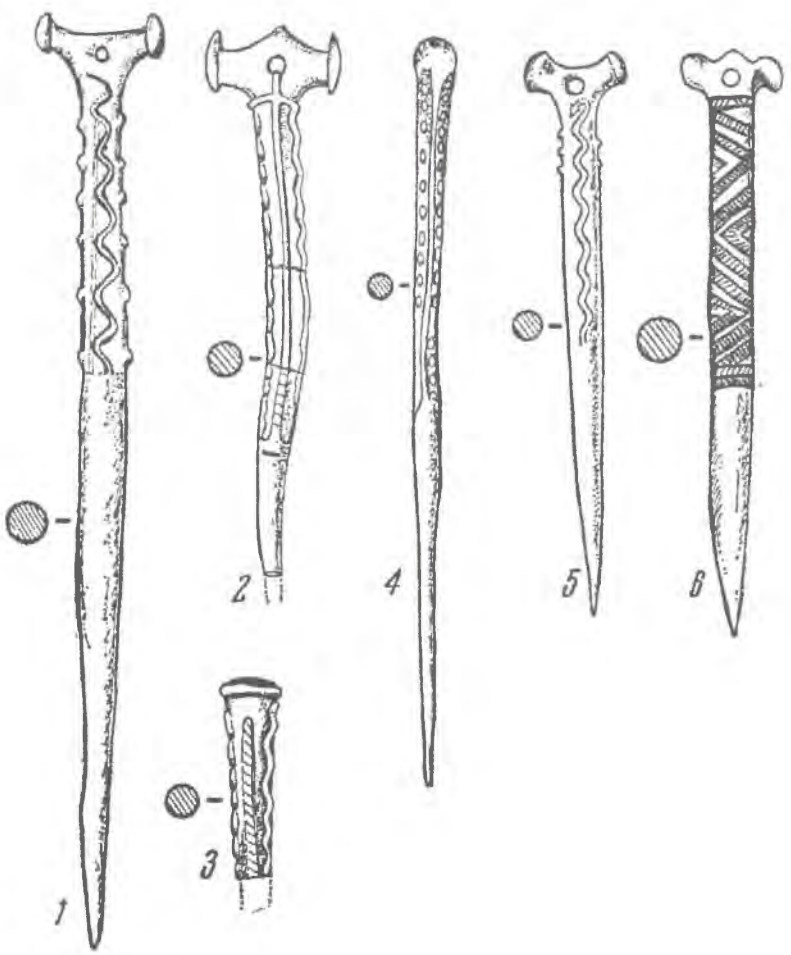


FIG. 326. Bone pins from the northern Caucasus. **1, 2, 5, 6,** hammer-headed pins. **1,** Khatazhukaevskij aul (Vesevolovskij's excavations of 1899); **2-4,** city of Kislovodsk; **5, 6,** Blagodarnoe, district of Stavropol. Scale approx. 1/1. *After* Markovin, 1959.

stone battle-axes, copper awls, hammer-headed pins of copper or bone, well-polished stone maceheads, wooden bows, and flint arrowheads), the reader is referred to this author's *Prehistory of Eastern Europe*, 1956, pp. 80-89, and to Popova, 1955 (in Russian). The grave equipment, in particular the hammer-headed pins, show that catacomb graves could not have started later than the very beginning of the second millennium B.C. In their initial stage catacombs appear while pit-graves covered with stone slabs were still in use. In the Kuban River basin and the southeastern Crimea, pit-cave burials seem not to have replaced the simple rectangular house-graves. Pit-grave and pit-cave burial rites were the same. The pit-cave idea was probably an imitation of Cycladic rock-cut tombs acquired during the expansion of the Kurgan Pit-grave people.

Finds of a related character occur at the mouth of the Danube in the west, along the lower Dnieper to the area south of Kiev in the north, and in the basin of the Donets River. The northeastern limit is approximately the Don River south of Voronezh and the lower Volga south of Stalingrad. In the northern Caucasus we find traces of the Catacomb-grave culture in the Kuban River and Kuma River basins (fig. 320).

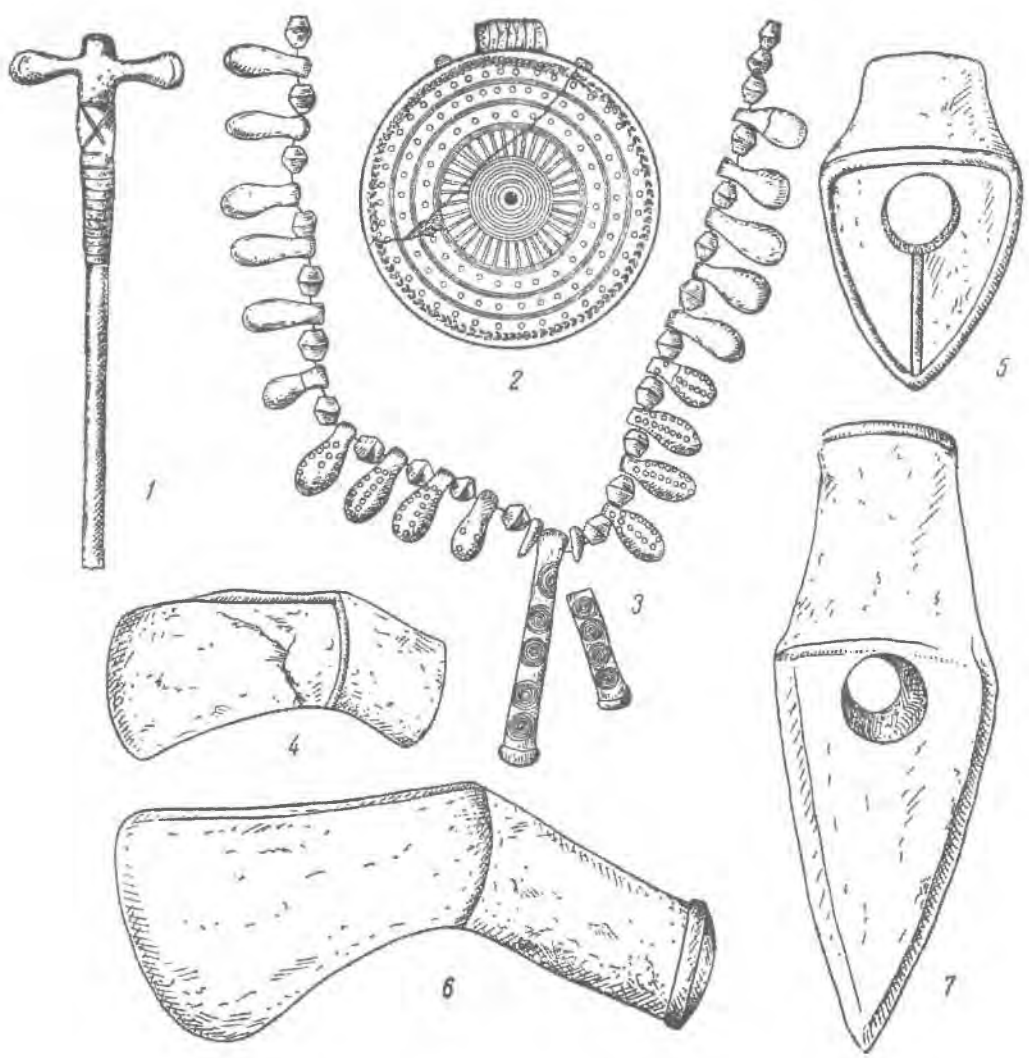


FIG. 327. **1**, hammer-headed pin; **2**, disc pendant; **3**, bead necklace; **4, 5**, slate axe, two views; **6, 7**, stone axe, two views. **1-3, 6, 7**, from the barrow at the village of Digora; **4, 5**, from the village of Koban. Scale 1/3. *After* Krupnov, 1951.

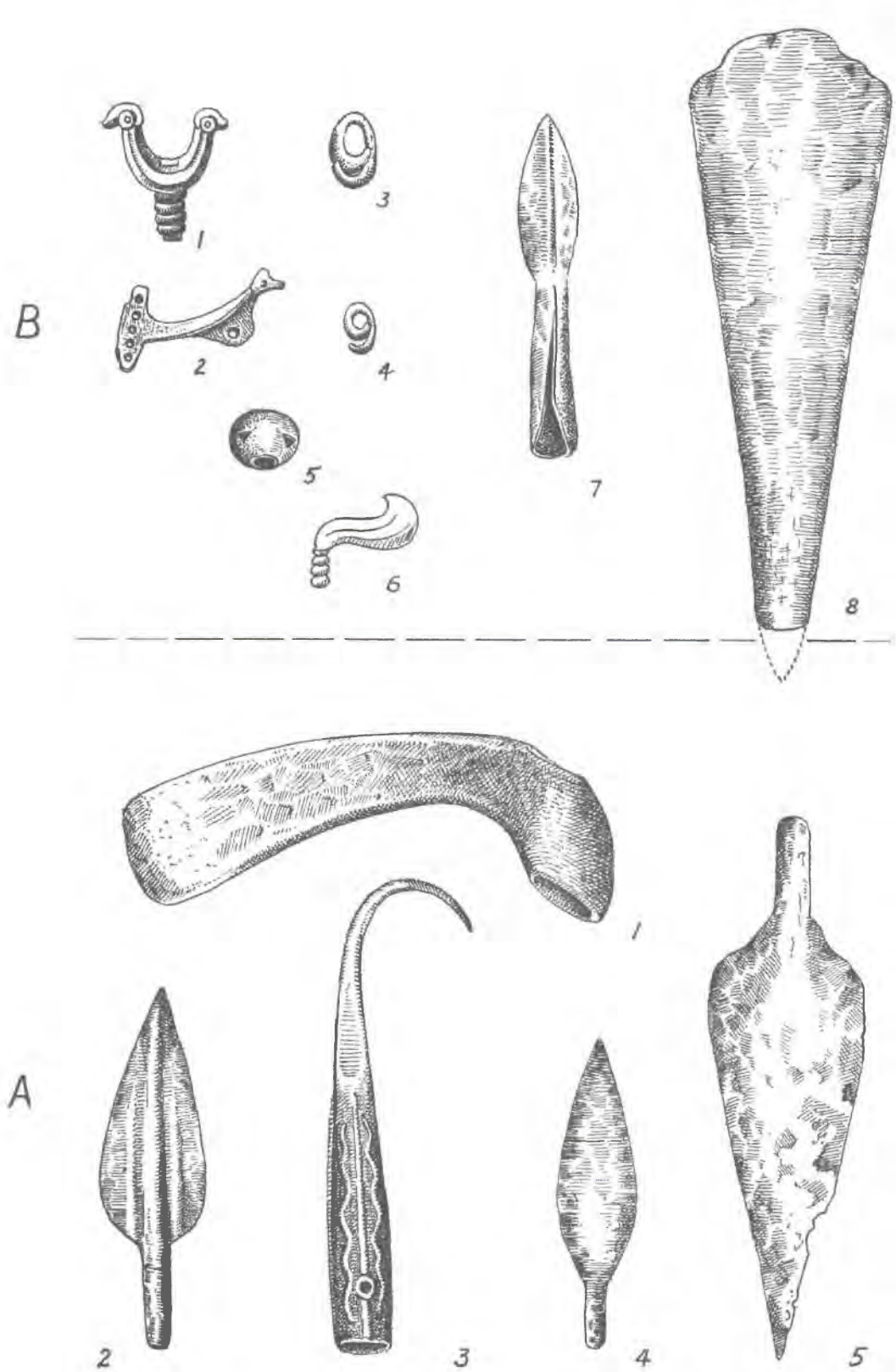


FIG. 328. Copper artifacts belonging to two periods from the Megalithic graves of Esheri, western Georgia: *A*, beginning of the second millennium B.C.; *B*, fifteenth century B.C. *A:* **1,** axe; **2, 4,** spearheads; **3,** sheath (?) with snake decoration; **5,** dagger. *B:* **1, 2,** symbolic pendants or ornaments with horned animal heads; **3, 4,** hair-rings; **5,** globular ornament; **6,** axe-shaped pendant; **7,** spearhead; **8,** dagger blade. Scale approx. 1/3. *After* Ivashchenko, 1932 (*B*), and Kuftin, 1940 (*A*).

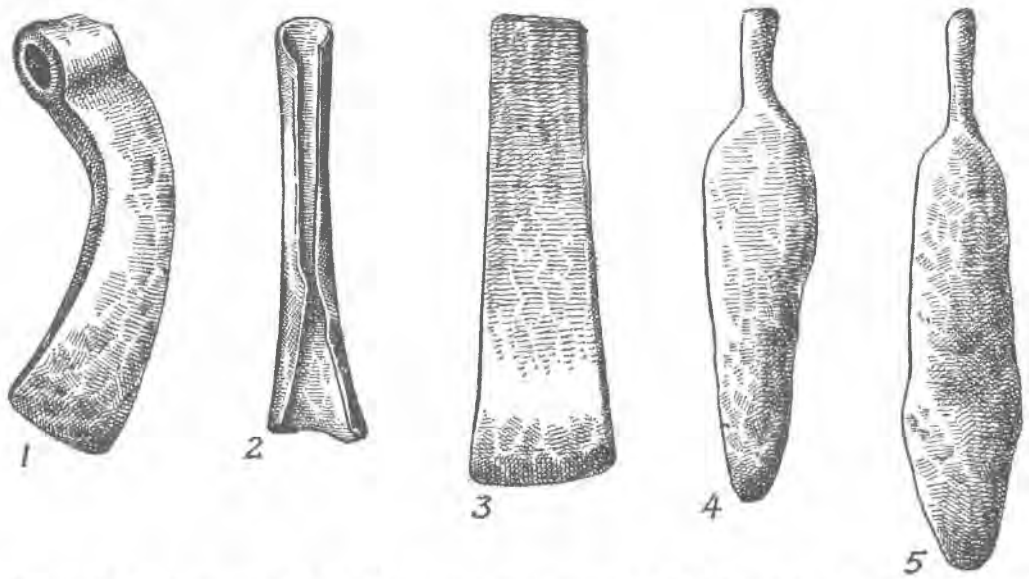


FIG. 329. Hoard of Privol'noe, north of R. Kuban, northern Caucasus. **1**, shaft-hole axe of copper; **2**, gouge; **3**, flat axe; **4, 5**, daggers. Scale: **1** 10 cm. long; **2, 3** 9 cm.; **4**, 10 cm.; 5 12 cm. *After* Hančar, 1937.

The Catacomb-grave period is contemporary with the middle metallurgical period on the Kuban River in the northwestern Caucasus, which is called Middle Kuban ("Early Kuban" referring to Majkop and Tsarskaja assemblages from the end of the third millennium). The North Caucasian center in the upper Kuban and upper Terek valleys was particularly productive. Typical artifacts were hammer-headed pins (fig. 326; 327, *1*), disc pendants decorated with concentric circles in pointillé technique (fig. 327, *2*), round, biconical, or elongated copper beads (fig. 327, *3*), and tanged daggers with broad blades (like the one in fig. 328A, *5*).

The Kuban-Terek center was related to metallurgy in western Transcaucasia, particularly in Georgia, whence strong influences came: axe and dagger forms in the two regions were similar. To illustrate the western Transcaucasian finds from this period I have chosen the early assemblage of metal artifacts from a cemetery of megalithic house-graves at Esheri in Georgia. Figure 328, *A* shows an axe, dagger, arrowheads, and the hooked end of some instrument decorated with a snake motif found in one megalithic grave. Other graves from the same cemetery yielded later assemblages of metal artifacts which are contemporary with the Faskau phase (fig. 328, *B*).

The hoard of Privol'noe from the Kuban River basin, containing a shaft-hole axe, a gouge with a folded socket, a flat axe, and two daggers with broad blades and narrow tangs (fig. 329) must also belong to this period, or to a somewhat later phase. This hoard has given a name to this period – the "Privol'noe period" – in the northern Caucasus, which is used in Russian studies.

Daggers, awls with a rectangular cross-section, and copper or silver spirals are the most typical representatives of Catacomb-grave metallurgy north of the Black Sea. Pots usually had a bulging shape, flat bottoms, and low cylindrical necks decorated with bands of herringbone motifs, incised zigzags, cord impressed triangles, semicircles, and concentric circles.

Metal axes did not supersede the stone ones which were usually made of dark green stone, serpentine, basalt, diorite, or other semiprecious stone. Axes were used for ritual purposes. Their special significance in cult ritual is indicated not only by the material of which they were made and by elaborate workmanship, but also by their ridged and engraved decoration, in which solar and snake motifs are distinguishable among other purely ornamental designs (fig. 330, *2-5*).

Axes and other symbols were engraved on tombstones or limestone slabs and on anthropomorphic

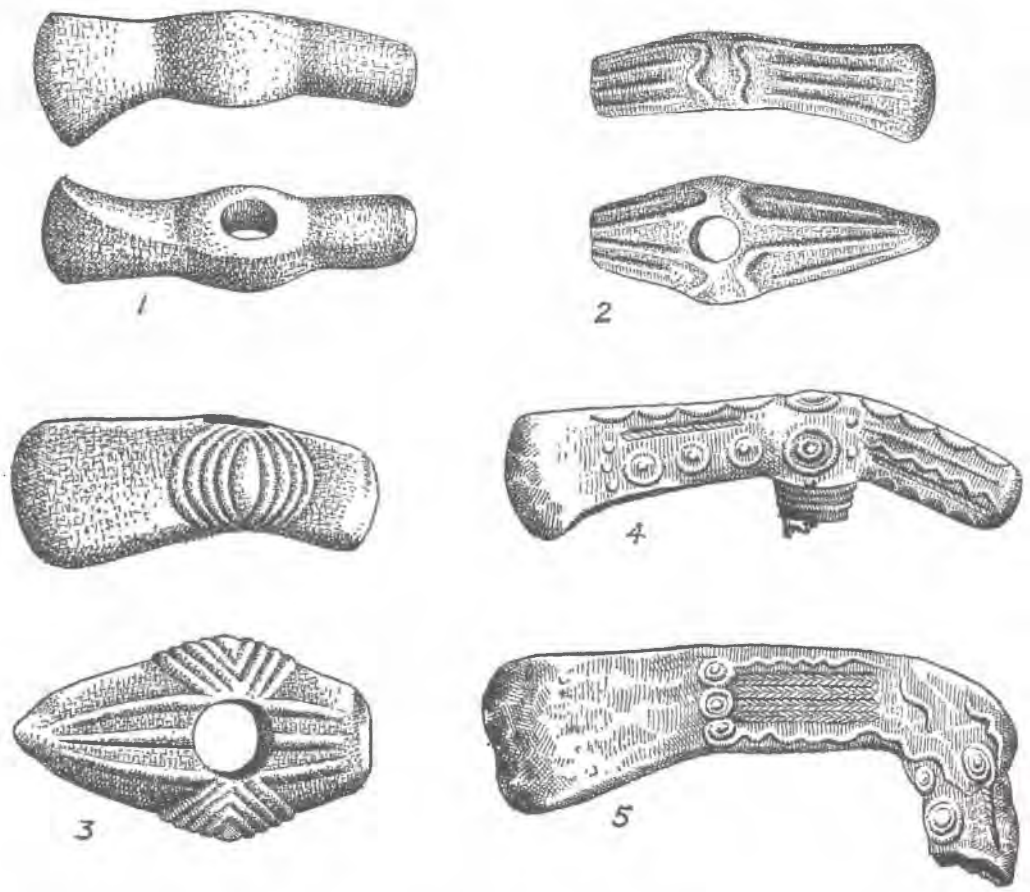


FIG. 330. Stone and copper axes from the Ukraine and the northern Caucasus. Catacomb-grave period and the Middle Kuban stage of North Caucasian metallurgy. **1,** stone axe from Lugansk near Voroshilovgrad, found in a catacomb grave; **2,** stone axe from Rajgorodok near Cherkassy (museum of Kiev); **3,** stone axe from the habitation site at Beshevo, district of Mariupol'; **4,** bronze axe from the vicinity of the city of Nal'chik; **5,** bronze axe from Bol'shaja Kabarda, central Caucasus. Scale approx. 1/3. *After* Popova, 1955 **(1, 3)**; Äyrăpää, 1933 **(2)**; Markovich, 1958 **(4)**; Krupnov, 1957 **(5)**.

stelae found above or near the graves in tumuli – additional evidence of the speical religious significance of the axe. In the Crimea, in Krasnaja Gora (formerly Bakhchi-Elan), 3 km. from Simferopol, a slab engraved with symbols was found in a small tumulus, lying above a pit-grave. The latter belongs to the Catacomb-grave period as we see from the globular pots with small cylindrical necks which it contained (Formozov, 1958, p. 138). The limestone slab was engraved on all sides with shafted axes, human figures, one of which has very prominent fingers, and large footprints (pl. 91). The general character of the symbolism is reminiscent of Val Camonica and south Scandinavian rock engravings.

Anthropomorphic stelae above the graves appear as early as the Pit-grave period in the end of the third millennium B.C. The earliest ones were roughly made with hardly recognizable human features, but during the Catacomb-grave period anthropomorphic stelae developed into large sculptures with small heads or with the upper part of the head projecting out from the stone, and with engraved arms and other attributes. In recent years 14 such stelae have been discovered in the Crimea, along the lower Dnieper and north of the Sea of Azov in the district of Melitopol' (Shchepinskij, 1958, p. 146). One stela stylistically inseparable from the North Pontic one was brought to light in Dobruja, eastern Rumania (Canarache, 1953).

One of the most interesting was found in Natalivka near Dnepropetrovsk. The stela was made of a flat slab of gneiss, 160 cm. high, 61 cm broad, and 12 cm thick. Human features, the head, arms, and

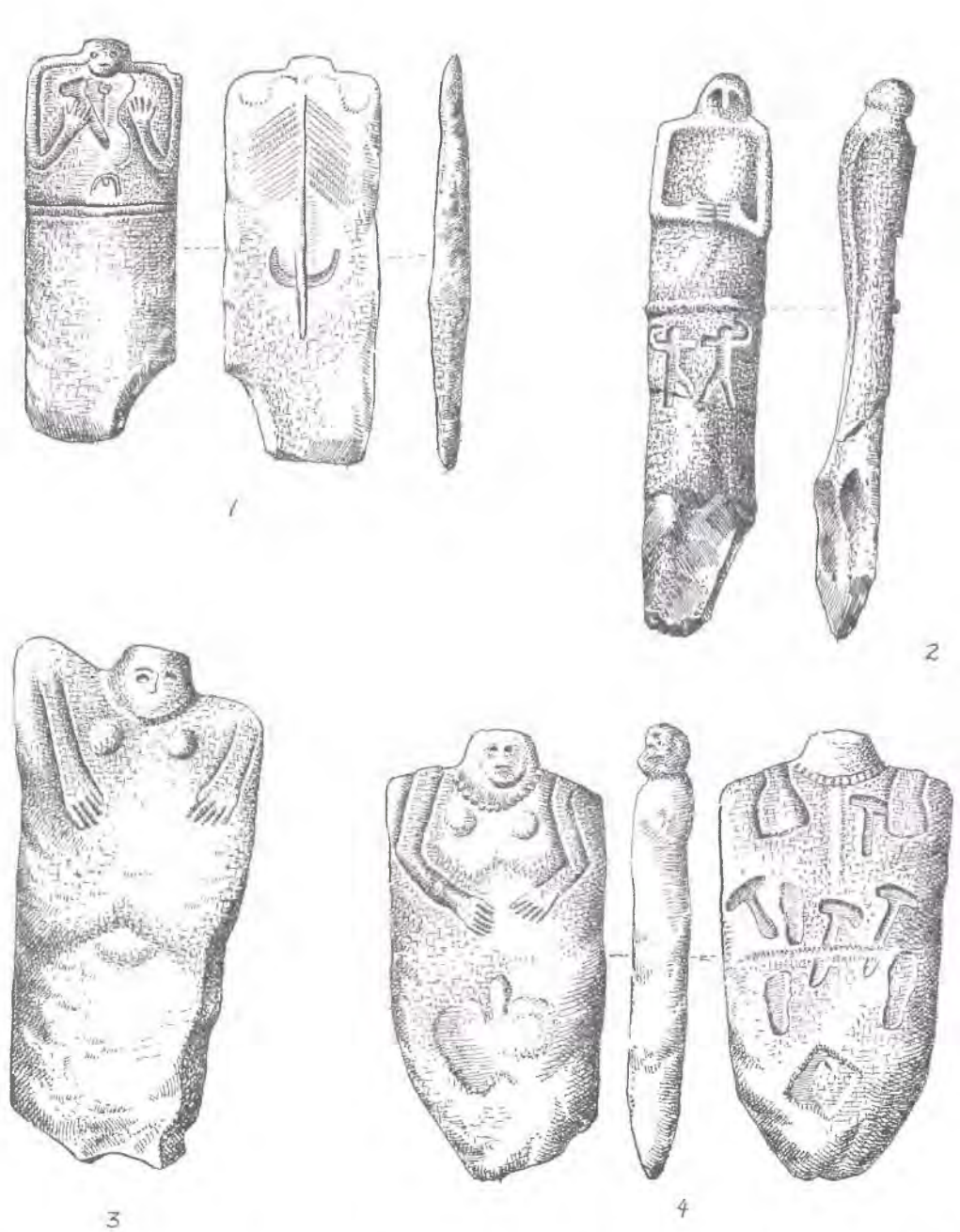


FIG. 331. Anthropomorphic stelae from the Catacomb-grave period. **1,** Natalivka near Dnepropetrovsk; **2,** Kazanki, south of Simferopol, Crimea; **3,** Tiritak, Kerch Peninsula; **4,** Hamangia, Dobruja, eastern Rumania. Scale: **1,** 1.6 m.; **2,** 1.17 m.; **3,** over 2 m.; **4,** 1.95 m. *After* Markovitch, 1959.

hands were engraved on the front side. The engraving on the back side (fig. 331, *1*) may indicate a spine and ribs. In the left hand, the figure held a bow; in the right, a shafted axe and a mace with a globular head (fig. 331, *1*). Bows, maces, and axes are typical parts of rich men's (chieftains') grave equipment during the Catacomb-grave period. Stelae found in Tiritak, in the Kerch Peninsula, resemble that from Natalivka, but symbols or weapons were not engraved on them (one of the Kerch stelae is shown in fig. 331, *3*). Around the neck there was a necklace, and breasts were clearly marked, but I doubt whether the portrayed figure was originally female. Although almost all the anthropomorphic stelae have small

breasts, they also have male attributes. The addition of female attributes may come from secondary re-shaping. Another outstanding stela comes from Hamangia, 20 km north of Istria, the district of Constanţa in Dobruja, eastern Rumania, which should be classified with the same group of North Pontic stelae. On the front side thin arms with hands on the belly, breasts, and male organs were depicted. A necklace hung around the neck; on the back were axes and footprints (fig. 331, *4*). The back side with axes and footprints was probably shaped first. The axes and footprints are analogous to those on the stela from Krasnaja Gora (pl. 91) and the female figure, more realistic, was executed later. One stela found in Kazanki, south of Simferopol had two dancing or fighting figures in relief (fig. 331, *2*). It is difficult to tell whether these two figures belong to the same phase. Close parallels for the North Pontic stelae exist in northern Italy: Alto Adige near Bolzano and Lunigiana near La Spezia (to be published in a monograph by E. Anati).

The anthropomorphic stelae apparently were not portraying the individual above whose grave they stood. It is more likely that the figure symbolized the deity; symbols like the axe, mace, or bow were probably the attributes of the male deity. In all the Indo-European groups the axe was a life-stimulating symbol and was protection against evil powers. Like the snake, it was inseparable from fertility cults. The deities portrayed seem to have been endowed with procreative and life-awakening powers and are close to the image of the thunder god in Indo-European religions.

2. *The Post Catacomb-grave period*

North Pontic sites are found only northwest of the Black Sea, in the lower Dnieper basin, in the Crimea, and east of the Sea of Azov in the Manych River area. The Don and Donets basins were occupied by the Timber-grave people. In the northern Caucasus this is the so-called Late Kuban stage of metallurgy which embraces a series of chronological phases marked by changes in bronze forms and techniques. The northern Caucasian metallurgical center continued to supply the area north of the Black Sea with finished metal artifacts or with copper ingots; axes, maceheads, chisels, and other artifacts found northwest of the Black Sea have twin models from the northern Caucasus. The chronological classification below will be chiefly based on northern Caucasian bronzes. As yet there is insufficient material to describe the pottery and graves from every chronological phase.

At least six successive assemblages of metal artifacts can be discerned from stratigraphy and evidence of commercial relations between the Catacomb-grave period and the beginning of the Iron Age. This long-lasting period corresponds to the Bronze Age of central and northern Europe, in both areas about six chronological groups being represented between the seventeenth or sixteenth and the eighth centuries B.C.

In the chapter on chronology, hoards from the northern Caucasus and the area north of the Black Sea were mentioned which should be assigned to certain periods on the basis of commerical relations and stylistic similarities with the Near East, Mycenaean Greece, and central Europe. Here, in brief, I shall recapitulate the chronological groups, labeling each phase by the name of a typical hoard or cemetery or by typical finds. In the chronological survey below bronze objects from the Koban group of the central northern Caucasus will also be included since this area yielded a number of key sites on which a chronological structure can be built.

a. *The Usatovo-Babino phase, ca. 1800 – ca. 1650/1600* B.C.

The phase which immediately follows the catacomb-graves is best known northwest of the Black Sea where it is called Usatovo, after the settlement and two kurgan cemeteries north of Odessa. West of the

Dnieper and along the Black Sea coasts to the lower Prut and the mouth of the Danube a separate hybrid variant of the North Pontic culture developed out of the Catacomb-grave and the Tripolye substratum (Lagodovskaja, 1940; Lagodovska, 1953; Petrescu-Dîmboviţa, 1951; for a short survey and illustration of the Usatovo group the reader is referred to Gimbutas, 1956, pp. 108-109, or to the detailed description of the Usatovo cemeteries and habitation sites given by Passek, 1949, in her monograph in Russian on the Tripolye culture, pp. 189-215). Graves and habitation sites contained pottery of two types: painted (fig. 8, *2-4*) and corded or incised (fig. 8, *5*). The first is a survival from the Tripolye culture which flourished before the Kurgan invasion, the second is a continual element of Catacomb-grave pottery tempered with some Tripolye influence. Aside from the pottery and dying forms of schematic female figurines, the Usatovo complex is eastern in character and had the same social structure, economy, and burial rites as the rest of the culture in the steppe around the Black Sea. Burial in catacombs was abandoned; graves were again rectangular pits covered with large stones or timber boards plastered with clay, or stone cists. Red or purple ochre continued to be placed above the dead. Tumuli were surrounded by one or two concentric rings built of large limestone slabs for burials of important people or of field stones for regular burials. Graves were covered with a round or cone-shaped barrow solidly built of or paved with stones (see the inner barrow of the Tsareva Mogila, fig. 322A). An interesting fact, noticeable only in the Usatovo group, is the simultaneous existence of tumuli and of flat grave cemeteries. In Usatovo two groups of Kurgans with a number of exceptionally rich graves and very elaborate tomb and tumulus architecture, and one cemetery of flat graves which did not yield any grave of kurgan stature were excavated. Judging from the finds, all three were contemporaneous. One explanation for this is that members of the ruling class were buried in the tumuli, the commoners in the flat graves (Passek, 1949, p. 199). The other possible explanation is that in this area the subjugated Tripolye people, not completely absorbed by the newcomers, maintained the custom of burial in flat graves.

Anthropomorphic stelae and engravings on limestone slabs found in the Usatovo habitation sites and cemeteries show persisting Catacomb-grave traditions. Near the hearth of one of the houses of the Usatovo settlement stood a vertical slab with anthropomorphic features (Passek, 1949, p. 191). The head of a bull was primitively cut out of a limestone slab belonging to the slab ring of tumulus No. 9 in the first cemetery of Usatovo (Passek, 1949, p. 196). In the cemetery of the Salgir River Valley in the Crimea, the central pit-grave of tumulus No. 9 likewise contained a stylized bull's head cut out of a flat sandstone (pl. 92, *4*), 16 cm long, and presumed to be a sceptre-head (Shults and Stoljar, 1958, p. 60). In several cases the limestone slabs of the rings of the Usatovo tumuli were engraved with symbols. One slab portrayed a human figure, a stag, and three horses (identification of the horses is not very certain; portrayals are very schematic), another a dog (Passek, 1949, p. 195). The bull and stag were the chief animals in burial rites. In the Crimea and the district of Odessa there have recently been found a number of stag skeletons and stag skulls buried in the center of the barrow next to human graves or kenotaphs (Shchepinskij, 1959). Human sacrifice seems also to have been involved in burial rituals. In barrow no. 2 of the above mentioned cemetery of Usatovo, at the southern part of the outer stone ring there is a pit, one meter square, covered by a large stone slab with a round cavity. In the pit were found five human teeth, four pots, four schematic human figurines, a bull's head carved out of a limestone slab, and pieces of ochre (Selinov and Lagodovskaja, 1940).

The stratigraphic position of the Usatovo finds was indicated by the Odessa kurgan. A typical painted Usatovo pot within a stone ring was found above the primary barrow of pit- and catacomb-graves and was covered by later stone-cist graves containing large biconical vases. Copper daggers with rivet holes (pl. 92, *1*, *2*), flat axes (pl. 92, *3*), and small rings found in the Usatovo graves are like products from Rumania and resemble forms from west Carpathian metallurgical centers in western Slovakia (pl. 3, *10*) dating from the early Únětice period. Another key artifact frequent in Usatovo graves is the bone ring with a perforation for suspension (fig. 8, *1*) which also indicates contemporaneity with the early Únětice, early Monteoru, and early classical Timber-grave cultures. Hence, Usatovo belongs to

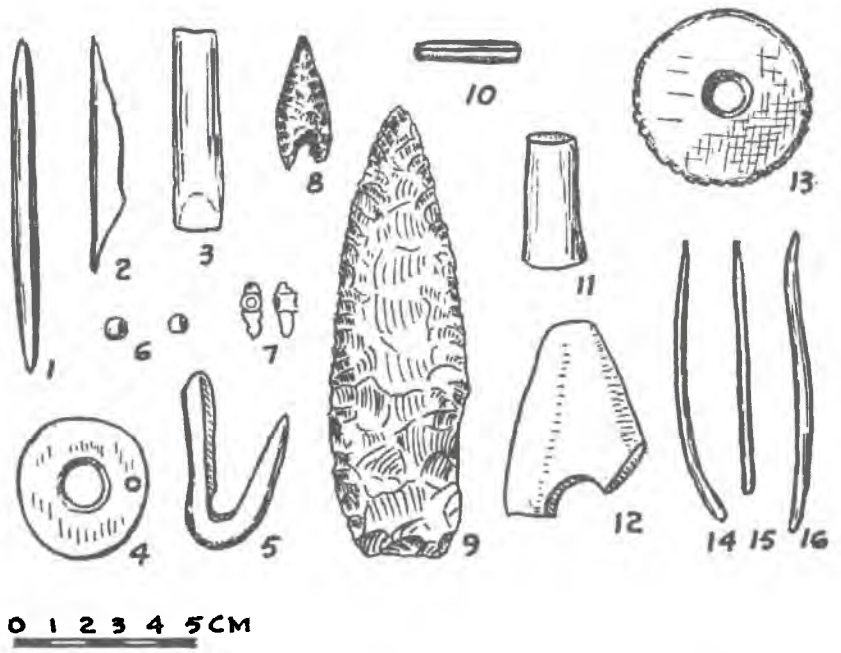


FIG. 332. Finds from the habitation site at Babino near Kherson. **1, 2,** bone awls; **3,** bone chisel; **4,** bone pendant; **5,** fishhook; **6, 7,** faïence beads; **8,** flint arrowhead; **9,** flint spearhead; **10,** copper bead; **11,** kernel from the shaft-hole of an axe; **12,** fragment of a stone axe; **13,** clay whorl; **14-16,** copper awls. *After* Dobrovol's'kij, 1957.

the post Bell Beaker and post Corded horizons in central Europe, and in the eastern Ukraine to the period of Timber-grave expansion in the Donets River area and north of the Sea of Azov.

In the lower Dnieper basin a number of habitation sites prove indigenous development and do not show any Timber-grave features. A type site for this phase in the lower Dnieper area is the village of Babino in the district of Kherson already mentioned. In addition to house remains (fig. 321), this site yielded a considerable number of finds. Among them was a bone ring pendant with a small perforation for suspension (fig. 332, *4*). From the previously mentioned assemblages (pp. 34-37) in which this kind of pendant of bone or amber occur (figs. 6-9), it can be seen that they date from the period preceding the seventeenth century B.C. Hence, it is quite probable that the Babino habitation site dates from about the eighteenth century B.C. and was contemporary with the first Timber-graves in the tumuli east of the Dnieper. Several copper awls (fig. 332, *14-16*), a tubelike copper bead (fig. 332, *10*), yellow faïence beads either rounded (fig. 332, *6*) or shaped like a bird's head (fig. 332, *7*), a bone chisel (fig. 332, *3*) and awls (fig. 332, *1, 2*) a large flint spearhead (fig. 331, 9), flint arrowheads with a concave base (fig. 332, *8*), pottery, animal and bird bones, fish bones, turtle shells, and acorns were also found. The Babino sherds were tempered with sand; the clay varied from dark gray to black. The surfaces were dark gray, brownish, or yellow; all had been either smoothed or polished. Pots were quite large, some of a 4 or 5 liter capacity, bulging vessels with high or sloping shoulders, though some had an angular profile. Pots had either a cylindrical short neck or an out-turned rim. In decoration, the predominant trait was applied ridges, horizontal (around the neck) or curvilinear (fig. 333). Above the middle zone of the pot, the ridges were usually incised; cord impressions were still used.

Several other habitation sites excavated in the lower Dnieper basin have yielded pottery sherds decorated chiefly with plain, pinched, or incised ridges and incised ornaments which can be regarded as typologically close to or somewhat later than Babino pottery. This type was found at the site of Varenychevka, near Zmiev on the upper Donets (fig. 334), in the site excavated in the garden of Shevchenko in the city of Dnepropetrovsk (Popova, 1955, p. 41) and in several other settlements (Popova, 1955, p. 72, fig. 16).

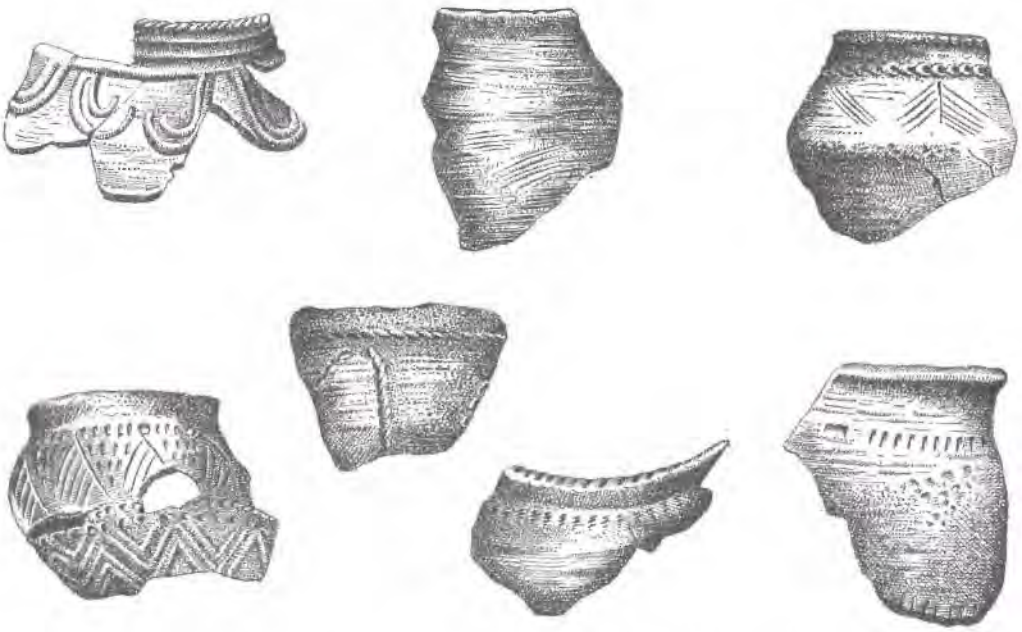


FIG. 333. Potsherds from the habitation site Babino III near Kherson. Scale approx. 1/2. *After* Dobrovolskij, 1957.

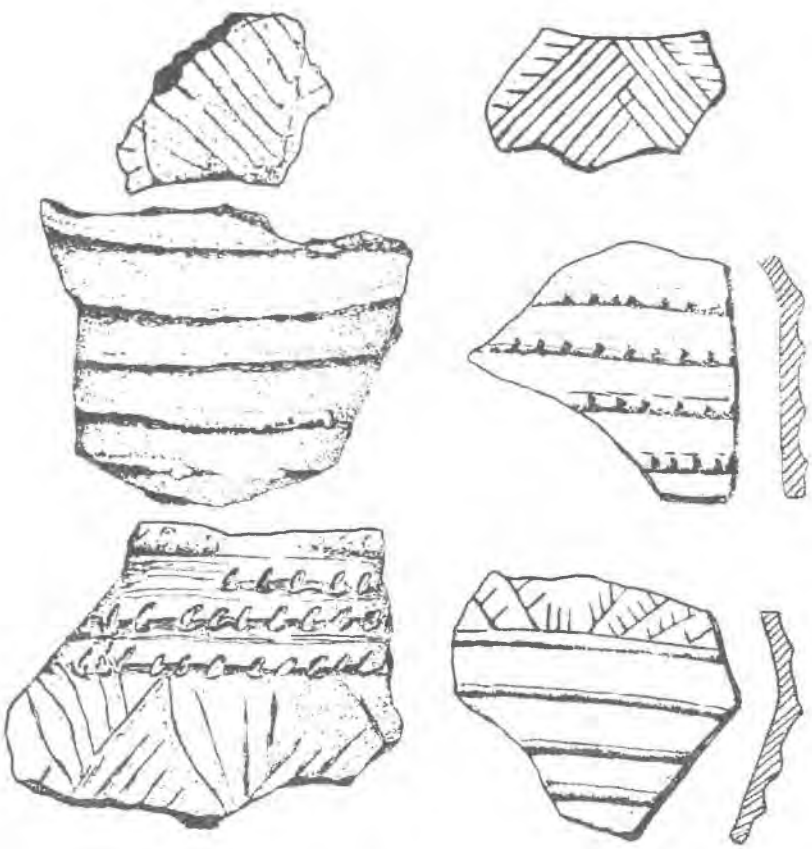


FIG. 334. Potsherds from the habitation site at Varenychevka near the town of Zmiev, district of Kharkov, western Ukraine. *After* Popova, 1955.

Similar finds, expecially in pottery, appeared in the stratified site of Gorodok in the Sejm River Valley near Putivl' in the district of Sumy (Berezanskaja, 1955, 1957), which is one of the most northern sites of this culture. The Gorodok finds have not yet been published, but from the preliminary report, we know that there were three cultural layers. The lowest yielded many hearths and sherds of large, wide-mouthed pots, with flat bottoms, ornamented from rim to bottom with pits, rows of incisions, or with diagonal whipped cord-impressions (pl. 93, *1*, *2*). This is Mar'janivka type pottery, named after another site in the same area (Rudinskij, 1930) which seems to belong to the persisting central Russian Pit-marked pottery culture. The middle layer yielded traces of four houses about 6 m long and 4 m wide, perforated stone tools, quartzite celts, flint arrowheads retouched all over the surface, and numerous potsherds. Ridged pottery related to the Babino type was predominant. The thin-walled pots had either angular or round shoulders, a high rim, several horizontal ridges around the neck, and sometimes one ridge around the middle. Rows of incised lines, interconnected or forming triangles, gave additional decoration (pl. 93, *3*, *4*). The clay was well fired; the surface was tempered with sand. In addition to the ridged pottery, there was another type: large vessels with small bases and thin walls, tempered with quartz, of a yellowish color, and decorated with pit-shaped incisions, dentate stamp impressions and incised lines. This type may represent a survival of local pottery traits. The ridged pottery in the Sejm River basin is foreign; it very probably indicates the northward expansion of the North Pontic people living around the lower Dnieper. The upper layer yielded Early Iron Age pots of the Jukhnovo type (pl. 93, *5*, *6*). In the district of Sumy and Kiev several other sites related to that of Gorodok have been found. Pottery very similar to the Bronze Age layer of the Gorodok settlement was found in the site of Zhukivtsy near Obukhivka, district of Kiev (Makhno, 1957).

b. *The Kut phase, ca. 1650 (?) – 1550/1500 B.C.*

One of the least known phases is the time span between the Usatovo-Babino and the Borodino period, for which we have few cemeteries or settlements with datable objects. The Odessa kurgan has shown that stone cist-graves elaborately built of well-prepared limestone slabs succeeded the Usatovo graves. The pots from these cist-graves were large and biconically shaped. West of the lower Dnieper a series of stone cist graves in tumuli were excavated but they were never published (excavations were done chiefly by M. Miller around 1930). As an example I am reproducing here one stone house-grave from the cemetery of Chervonyj Kut (fig. 335, *1*, *2*) which contained large biconical pots decorated with horizontal ridges (fig. 335, *3*, *4*); I have used the name of the site as a label for the phase. A stone cist in a large tumulus called "Grubova Mogila" near Kichkas in the district of Dnepropetrovsk contained two copper or bronze daggers with flat rhomboid hafts and leaf-shaped blades (like that in fig. 336). Such daggers have been found in isolation in the lower Dnieper basin (fig. 336, *3*), the Crimea (fig. 336, *2*), and the central Caucasus (fig. 336, *1*). The date for this phase is a pure guess, but it is somewhat backed up by stratigraphy and typology.

c. *The Borodino-Faskau phase, 1550/1500 – 1450/1400 B.C.*

The most prosperous phase of the central northern Caucasian metallurgical center can be compared only with the Koban proper (Koban cemetery) period (ninth to eight centuries B.C.). Finds indicate a period of marked creativity and refined taste. Trade became very intensive; identical bronze objects as well as faïence beads, amber, and gold artifacts circulated along the northern coasts of the Black Sea. Contacts with the Near East were close.

The richest materials that represent the early Koban culture in the central northern Caucasus are

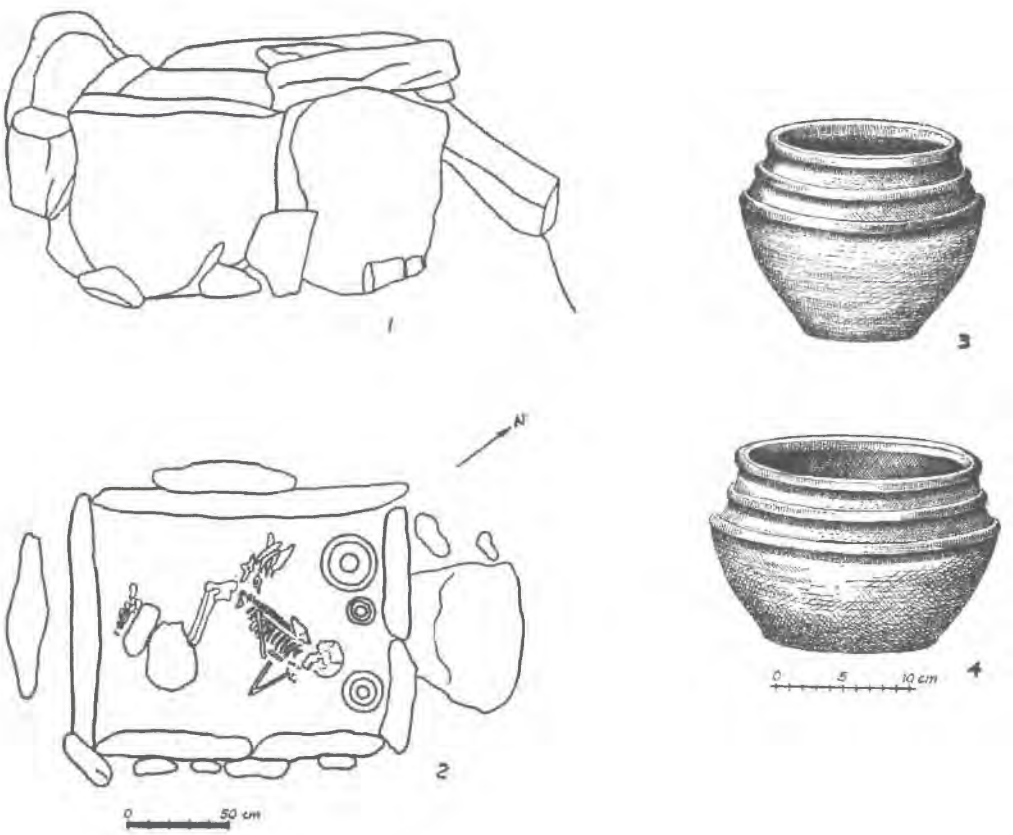


FIG. 335. Stone cist and pots from the Chervonyj Kut (ploshchadka A) cemetery, lower Dnieper area (grave No. 3, Kurgan No. 26). **1,** side view; **2,** plan; **3, 4,** two of three pots found in the grave. *By courtesy* of M. Miller.

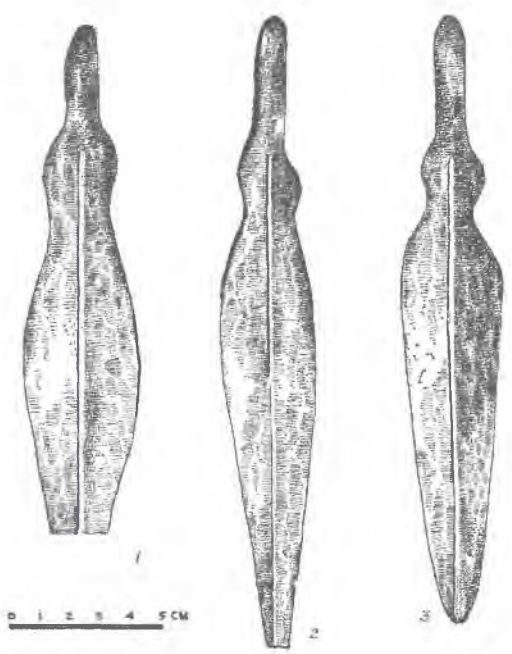


FIG. 336. Daggers from the Caucasus, Crimea and lower Dnieper. **1,** Ossetia, central Caucasus; **2,** Krymskaja Stanitsa, Crimea; **3,** Mishurin Rog, lower Dnieper area, western Ukraine. **1,** *after* Iessen, 1951; **2, 3,** *by courtesy* of M. Miller.

from Ossetia. The bulk of finds come from the cemeteries of Faskau, Brili, and Verkhnjaja Rutkha. All of them are important for chronological comparisons.

The Faskau cemetery yielded a magnificent variety of Caucasian axes (fig. 29, *1-4, 11-14*) and other finds, like stone and copper maceheads (fig. 29, *7, 17, 18*) and daggers, some of which have parallels in the Near East (fig. 29, *9, 10*). A contemporaneous outstanding find northwest of the Black Sea is Borodino, a royal hoard, of special significance for chronological comparisons since it combines Mycenaean I-II and Caucasian-Near Eastern elements (described in pp. 64-66, pls. 12 and 13). The hoard consisting of a Caucasian copper axe (similar to one of the Borodino stone axes), a dagger and a spearhead found at Andrjukovskaja Stanitsa in the Kuban River basin, probably belongs to the same period (fig. 30), as also does the cemetery of Pervomajskoe in the district of Groznyj, eastern Caucasus (fig. 19). Another hoard from northwest of the Black Sea, the Nikopol' hoard, contained a Caucasian axe and hair-rings of a Transylvanian form which were very probably made of Transylvanian gold (pl. 9).

The cemetery of Verkhnjaja Rutkha, near Kumbulta, in the central northern Caucasus, is another type site for this period. In large rectangular tombs built of stones and covered by barrows, there appeared a great number of copper ornaments, pins with large plate heads in the form of double spirals or mouflon horns decorated with small bosses (fig. 337A; *8-10*), hair-rings with thick overlapping ends (fig. 337*A*, *6*), bracelets made of round wire with tapered ends (fig. 357,*A*, *2*), head ornaments made of flat copper wire with broadening ends (fig. 338,*A*, *1*), pendants in the shape of roosters (fig. 337, *A*, *7*), rams or mouflons, birds and axes (fig. 337, *A*, *5*), copper and white faïence beads (fig. 337, *A*, *3*). Among the weapons were daggers and points of the usual Transcaucasian-Near Eastern form (fig. 337, *B*, *1-5*), heart-shaped flint arrowheads (fig. 337, *B*, *7-11*). In addition to copper axes there were axes of stone (fig. 337, *A*, *11*). Many isolated finds, axes, pins, pendants, and daggers, from the Caucasus and the north, Pontic area belong to this period. In the Kumbulta area at the end of the nineteenth century Countess Uvarova collected a great number of tremendous pins, some 75 cm. long. Their heads were usually either imitations of mouflon horns (like that in fig. 337, *A*, *8-10*), fanlike, made of solid plate or in openwork technique (pl. 94, *1-3*), or had elongated plate heads decorated with rows of embossings (pl. 94, *4*, *5*). These pins, however, are typical only of the Koban culture and did not spread over the north Pontic area like axes or maceheads.

d. *The Kostromskaja phase, 1450/1400 – 1250/1200* B.C.

The largest hoard of northwestern Caucasian bronzes was found in 1914 at Kostromskaja on the Kuban River, not far from Krasnodar (*IAK*, p. 65, 1918). It contained sickles (fig. 338, *1-3*), chisels (fig. 338, *5-7*), a shaft-hole axe (fig. 338, *4*), and copper ingots (fig. 338, *8*, *9*). The objects reproduced in figure 338 are from the collection in the Hermitage Museum in Leningrad. Thirty-four sickles of the same kind are in the Krasnodar Museum in the northern Caucasus, and they too probably belong to the Kostromskaja hoard (Iessen, 1951, p. 108).

A quite similar assemblage was found in the western Ukraine, a fact attesting to important commercial relations between the northwestern and northeastern Black Sea coasts. The hoard of Rybakovka near Odessa contained an example of the same kind of shaft-hole axe (fig. 339, *1*), 19 flat axes or chisels (like those in fig. 339, *3-5*), and one narrow chisel (fig. 339, *2*). Four axes related to the Kostromskaja and Rybakovka type, some of which were decorated with five narrow grooves on the butt-end, were found within a bronze vase near the village of Mikhajlovka, district of Kherson, western Ukraine (Tallgren, 1926, fig. 98, *9*).

The Kostromskaja sickles are, so far, the earliest metal sickles known to the northern Caucasus. The sickle found in the hoard of Kozorezovo in the western Ukraine (fig. 48, *3*) in association with double-axes showing Aegean affinities (fig. 50) may be approximately contemporaneous. On the whole,

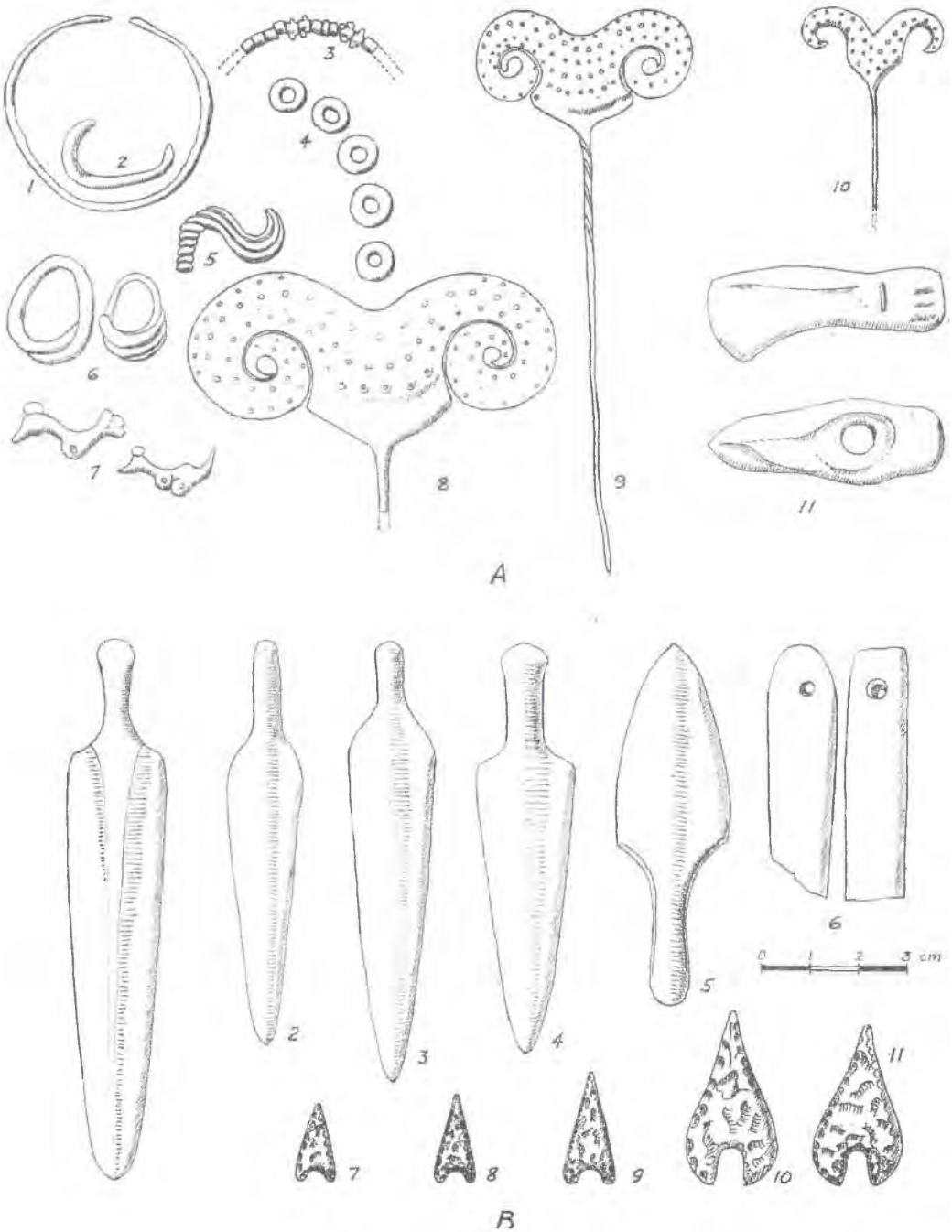


FIG. 337. Grave finds from the cemetery of Verkhnjaja Rutkha, near Kumbulta, northern central Caucasus. *A:* grave No. 16: **1,** head ornament of flat copper wire; **2,** bracelet; **3,** faience beads; **4,** bone beads; **5,** miniature axe-pendant of copper; **6,** copper hair-rings; **7,** pendants in the form of a rooster; **8-10,** copper pins; **11,** stone axe. *B:* grave No. 10: **1, 4,** copper daggers; **5,** copper arrowhead; **6,** whetstone; **7-11,** flint arrowheads.
Scale: *A,* **1-7** approx. 1/3; **8-11** approx. 1/5; **9, 10** approx. 1/6.
After Krupnov, 1951.

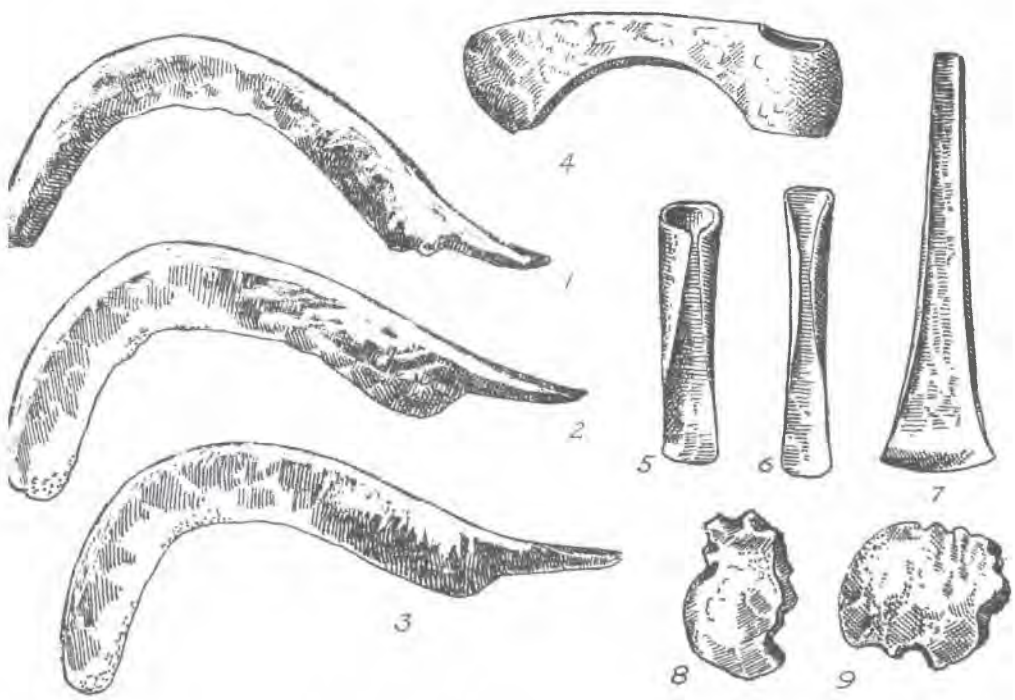


FIG. 338. Kostromskaja hoard, district of Majkop, northern Caucasus. **1-3,** sickles; **4,** axe; **5-7,** chisels; **8, 9,** ingots. Scale approx. 1/4. *After* Iessen, 1951.

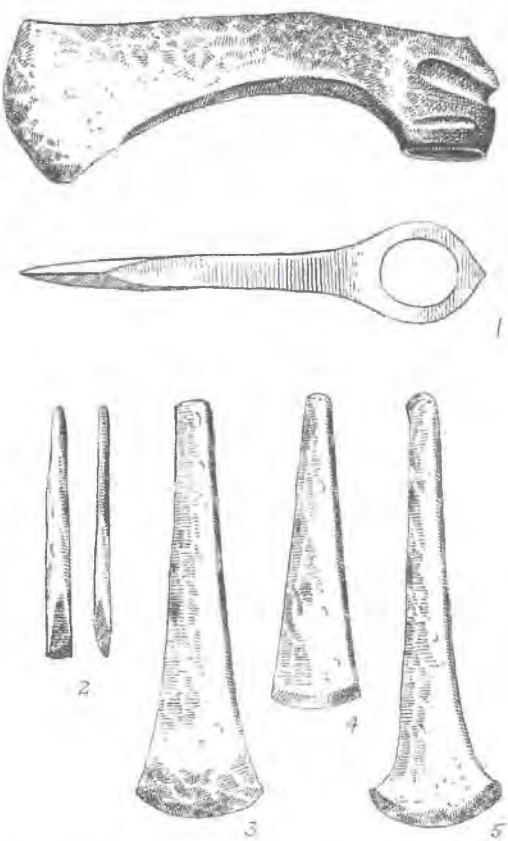


FIG. 339. Rybakovka (Adzhijask) hoard, near Odessa, western Ukraine. **1,** axe; **2-5,** chisels. Scale 1/3. *After* Krivtsova-Grakova, 1955.

over 40 sickles have been found in the northern Pontic region. The Caucasian sickles represent a form which is entirely different from the central European type, though parallels are to be found in the Near East, where similar sickles, almost semicircular in outline and having a tang for a handle, have been discovered in Iran, Syria, and Lebanon. The axe and chisel forms have predecessors from an earlier period in the Caucasus.

The axe form from the hoards of Rybakovka and Kostromskaja (figs. 338, *4*; 339, *1*) has analogues in eastern central Europe which have been reproduced by Much from Komarov and Sloboda Rungurska north of the Carpathians (Much, 1893, p. 45, fig. 40; p. 46, fig. 41). Analogous axes are reported from Hungary and Rumania (cf. Hampel, 1896, pp. 28, 66, fig. 19), which would indicate relations between the Carpathian and North Pontic areas during the period which is, in central Europe, Phase B. Commercial contacts between the Caucasus and central Europe are also indicated by a bracelet with spiral-end plates coiled in reverse fashion to the central European type found in the Kuban district of the northern Caucasus (Iessen, 1951, p. 96, fig. 24).

In the central northern Caucasus a culture very much the same as that of the Faskau phase persisted. A typical site for this phase is the cemetery of Kvasatali in southern Ossetia in the very center of the Caucasus, excavated in 1952 (Dzhaparidze, 1955a). Eight graves covered with large boulders were uncovered, three containing collective burials, the rest single graves. Daggers and knives Near Eastern in character were most frequent among the Kvasatali finds: the daggers had long tangs with a hole at the end (fig. 340, *4*, *5*), or were short knife-daggers (fig. 340, *6*, *7*). Spearheads had long and narrow

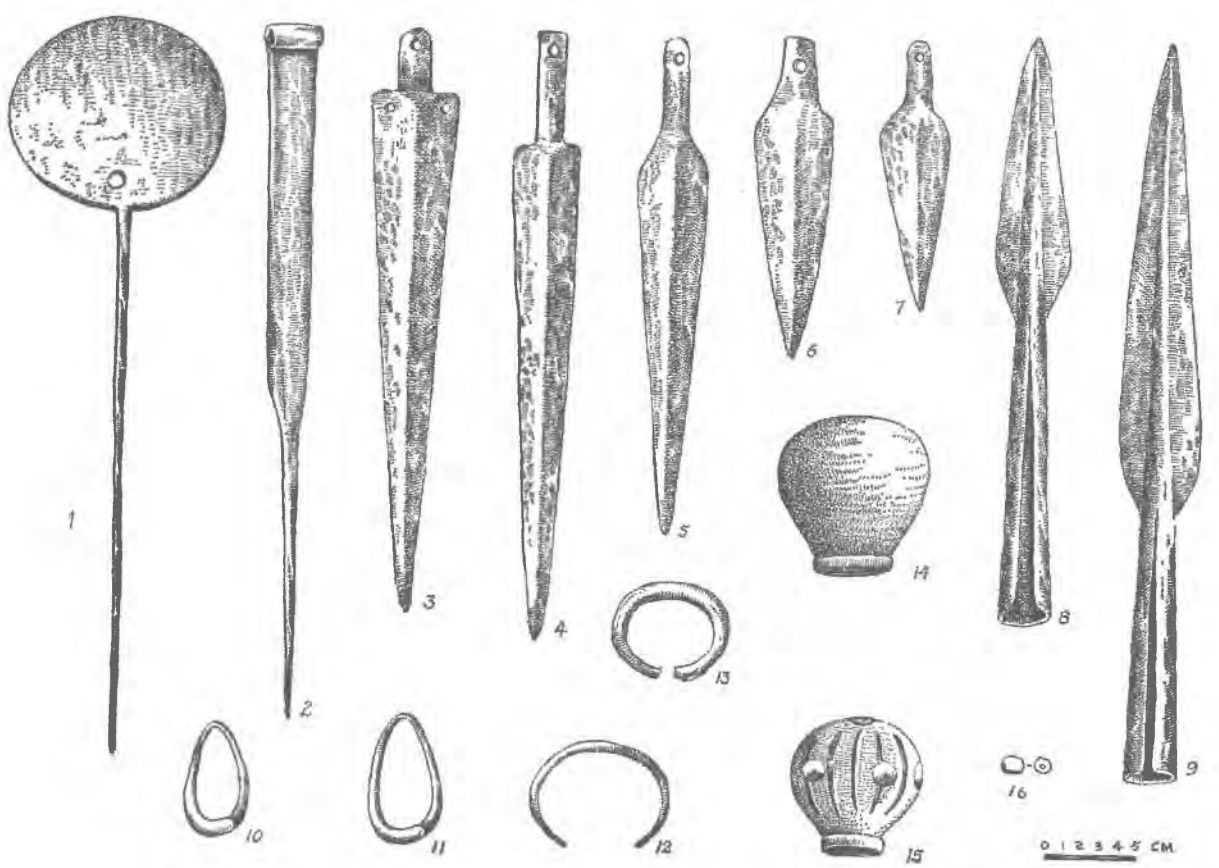


FIG. 340. Finds from the cemetery of Kvasatali, southern Ossetia. **1**, copper pin with a disc-head; **2**, copper racquet pin; **3-7**, daggers; **8, 9**, spearheads; **10, 11**, hair-rings; **12, 13**, bracelets; **14, 15**, maceheads; **16**, faïence bead. *After* Dzhaparidze, 1955.

wings and U-shaped (fig. 340, *8*, *9*). Pins with large disc heads continued to be made (fig. 340, *1*); racquet-shaped pins were initiated (fig. 340, *2*). Hair-rings with overlapping ends (fig. 340, *10*, *11*), bracelets (fig. 340, *12*, *13*), and faïence beads (fig. 340, *16*) were common products of this phase as they were during the Faskau.

The Kvasatali phase immediately succeeds the Faskau phase as can be seen from the typology of metal artifacts. Its date is also indicated by its similarity to the finds of Trialeti and to the earliest graves in the cemetery of Samtavro, in Georgia. Trialeti spearheads (fig. 51, *2*) and Samtavro rapiers (fig. 53, *1*) have very close parallels in the Late Helladic III A period. The same date is indicated by analogous metal forms from the Near East (cf. the hoard of 74 objects from Ras Shamra, fig. 54, dated to the period 1400-1300 B.C.).

The eastern Caucasian cemetery of Khorochoj in Daghestan with its many stone cist graves (like that in fig. 341, *A*, *a*, *b*) containing numerous copper plate hair-rings with wide, convex, and overlapping ends (fig. 341, *B*, *3*), tubular copper beads (fig. 341, *B*, *1*, *2*), beads of green and white faïence (fig. 341, *B*, *5*, *9*), carnelian (fig. 341, *B*, *4*, *6-8*), antimony, and amber (fig. 47, *6*, *13-20*), and copper plated head ornaments (fig. 341, *B*, *10*, *11*) probably must be assigned to this phase on the basis of comparable items from eastern central Europe and the central Caucasus. In eastern central Europe hair-rings with thick, hollow, overlapping ends belong to Phase B_1 which is the first expansion period of the central Europe people to Hungary and Rumania. Another cemetery of cist-graves under low barrows with similar finds was excavated in 1954 near the village of Chokh in Daghestan (Munchaev, 1958).

e. *The Berislav phase, 1250/1200 – 1100* B.C.

An assemblage of finds which typologically succeeds the Kostromskaja hoard can be labeled Berislav after a Ukrainian hoard of this name. The hoard of Berislav, found in 1925 on the right side of the lower Dnieper (Dobrovolskij, 1948), contained several variants of Caucasian axes (fig. 342, *5-7*), some reminiscent of the Kostromskaja form and some with grooved butt-ends, a larger and a smaller variety of a sickle, (fig. 342, *1-4*) and 24 kg of irregularly shaped copper ingots. The axes were between 17.4 cm and 19.6 cm long. The specimens with grooved butt-ends (fig. 342, *5*) are frequently found in the western Caucasus (Iessen, 1951, pp. 96 ff.), while variants are known from hoards and isolated finds in the northern Caucasus and the western Ukraine (fig. 343).

Grooved butt-ends became a very characteristic trait of Caucaso-North Pontic metallurgy. Originally, however, this mode of axe decoration goes back to a much earlier period in the Near East, where grooved axes, for instance, are known from level V of Atchana, (1595-1527 B.C., Woolley, 1955, fig. At/48/20), from Ras Shamra of Late Ugarit 2 (1450-1365 B.C., Schaeffer, 1948, fig. 44), and from the temple of Amenophis III, (1411-1375 B.C., Zakharov, 1928, p. 41, fig. 8). In the Caucasus, grooves on the butt-ends of axes appeared occasionally also on axes of the Faskau and Kostromskaja phase but did not dominate the axe form.

The Berislav sickles were an outgrowth of the Kostromskaja type and are typical of the Caucasus and North Pontic area. They are sharply curved and have a narrow, pointed tang for easy attachment to a handle (fig. 342, *2*). The sickles reproduced in figures 342, *3*, *4*, are probably derivatives of the same line.

The date of the Berislav assemblage is shown by its relations with the western Ukrainian hoards like Koblevo (fig. 98) and Rajgorodok (fig. 96) which show connections with the eastern Rumanian late Monteoru culture and run parallel to central European Urnfield II. The hoard of Rajgorodok contained a bulbed macehead which, as has been mentioned, has very close parallels in western Transcaucasia in the cemetery of Beshtasheni (fig. 97) and in the lowest flat graves of Samtavro (Chubinishvili, 1957, pl. XVII, 846).

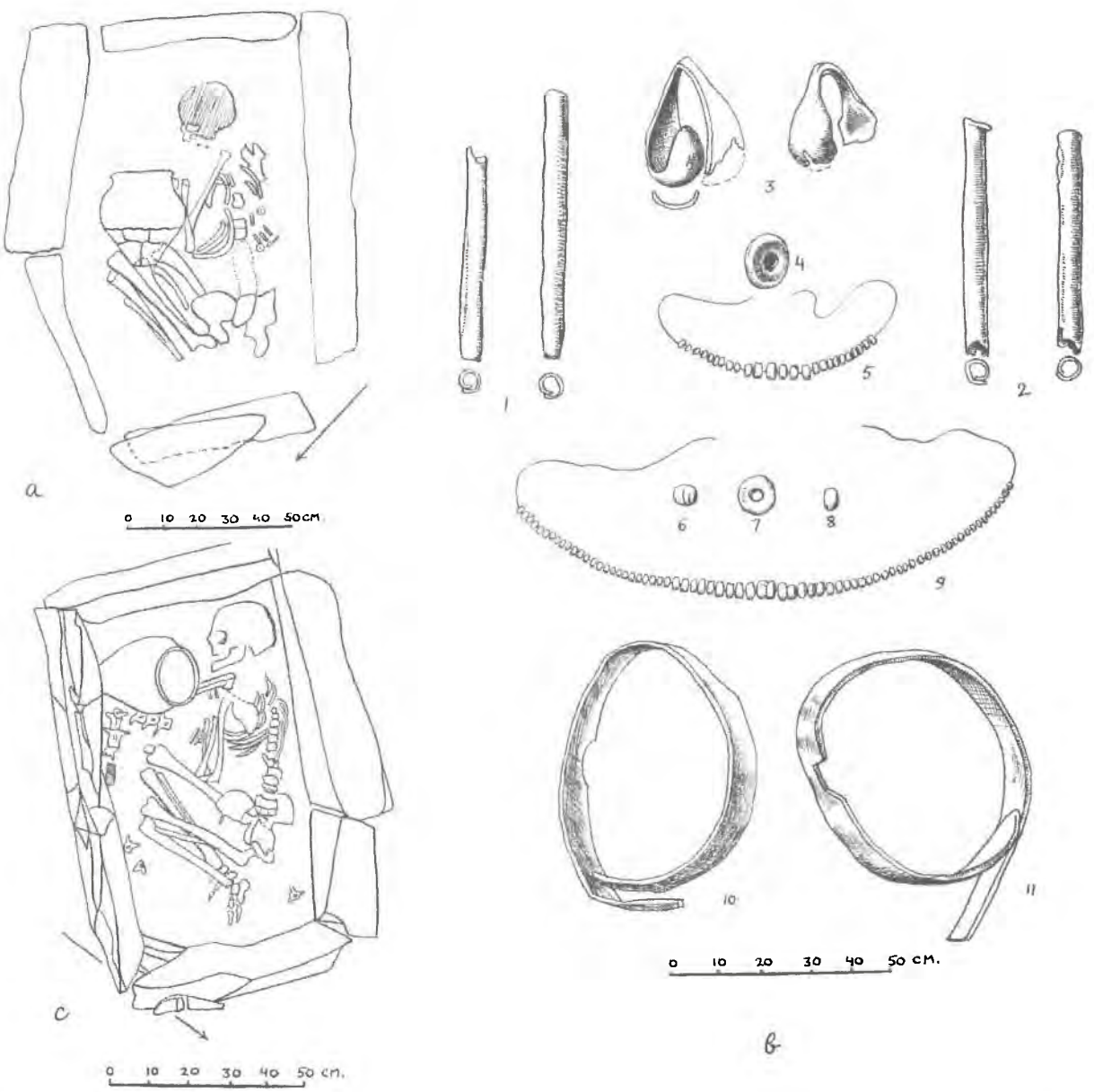


FIG. 341. Stone cists and finds from the cemetery of Khorochoj, Daghestan, northeastern Caucasus. *a*, grave No. 2; *c*, grave No. 47; *b*, finds from the graves No. 46 and 47: **1, 2,** tubular copper beads; **3,** hair-rings; **5, 9,** faïence beads, green and white in color; **4, 6-8,** carnelian beads; **10-11,** copper head ornaments (diadems). *After* Kruglov, 1958.

Bronzes from the Koban cultural area are represented by the cemetery of Tli in southern Ossetia excavated by Countess Uvarova (finds are in the State Historical Museum, Moscow). Among the ornaments there were pins with bulbed heads (pl. 95, *2*, *3*) which are analogous to those from the late Monteoru or Noua culture in Rumania (fig. 158, *7*), there were also pins with large disc heads (pl. 95, *1*) which continue the Kvasatali type (fig. 340, *1*), and several other types of shorter pins with perforations and profiled heads (pl. 95, *9*, *10*, *14*, *15*). Bronze belts and bracelets of the cemetery of Tli were decorated in a pointillé technique (pl. 95, *1*, *13*) as were belts in central Europe. Spearheads continued to be made with U-shaped sockets (pl. 95, *8*).

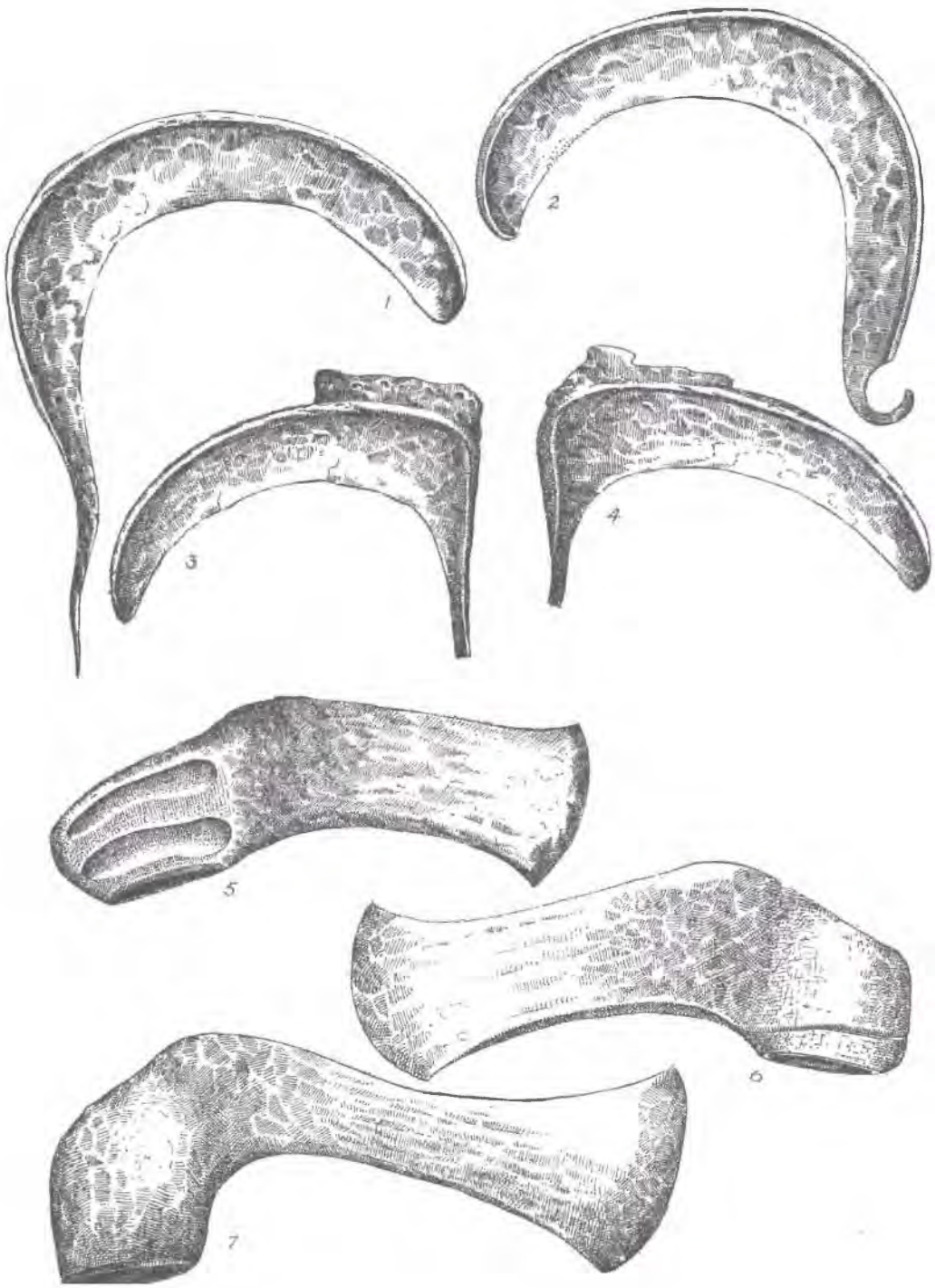


FIG. 342. Berislav hoard, lower Dnieper. **1-4,** sickles; **5-7,** axes of Caucasian type. Scale less than 1/2. *After* Dobrovol's'kij, 1948.

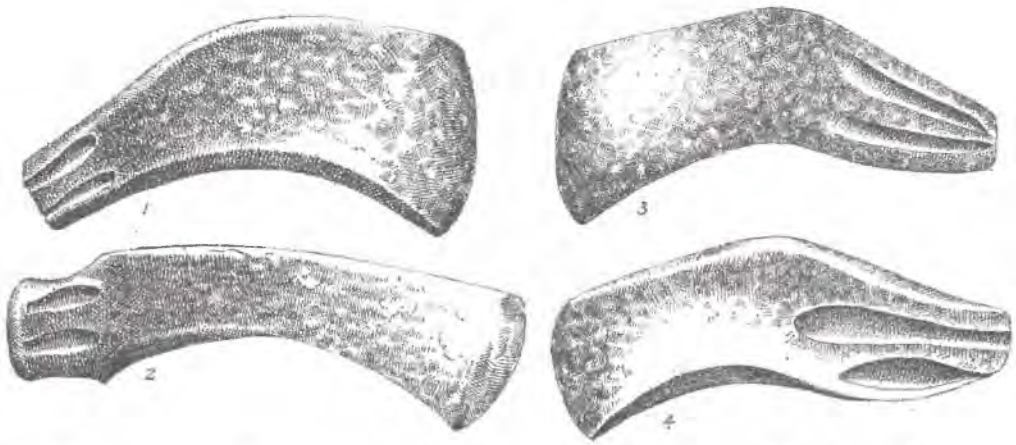


FIG. 343. Axes from the western Ukraine and the Caucasus. **1, 2,** Kryvoj Rog, west of the lower Dnieper; **3, 4,** Lesken, northern Caucasus. Scale approx. 1/3. **1, 2,** *by courtesy* of M. Miller; **3, 4,** *after* Krupnov, 1951.

f. *The Borgustanskaja phase, 1100 – 850/800* B.C.

Metal forms of this phase show, on one hand, continuity from the preceding period, and, on the other importation or adaptation of forms from the Colchidic culture in western Transcaucasia and northeastern Anatolia. Colchidic axes and lugged adzes spread along the eastern Black Sea coasts to the Crimea.

The hoard discovered in 1941 at Borgustanskaja Stanitsa near the small Bugunta River, tributary of the Podkumka, 28 km west of Essentuki is one of the most outstanding of the series of hoards from the Kuban area of the northern Caucasus. It contained up to 50 axes over 20 cm in length (fig. 344, *5*), ten sickles with narrow tangs (fig. 344, *1*), three socketed spearheads (fig. 344, *4*), eight flat axes (fig. 344, *2*), and lugged adzes (fig. 344, *3*). The specimens were found lying in two pots (part of the hoard was published by Egorov in 1951 and by Iessen, 1951). The same type of north Caucasian sickle and axe appeared in the Agur hoard on the left bank of the Teberda River, also in the basin of the upper Kuban. Both objects, placed in a pot, were found at a depth of 2 m (Iessen, 1951, p. 90, fig. 18). The hoard of Bekeshevskaja Stanitsa on the upper Kuma River, found in 1877 (fig. 345) belongs to about the same time horizon. This hoard included socketed celts of the western Ukrainian type (fig. 345, *5, 6*), a Caucasian axe, a dagger, and sickles.

In the Ukraine there were no more Caucasian finds; the close connections with the northwestern Pontic area across the northern coasts of the Black Sea had been interrupted. The direction of influence was reversed. Instead of Caucasian bronzes in the area west of the lower Dnieper, we find bronzes of Timber-grave type produced in the western Ukraine. The double-looped socketed celts from the hoard of Bekeshevskaja Stanitsa (fig. 345, *5, 6*) have close parallels in the western Ukraine and in the Volga area, as do the tanged spearheads found in several locations of the northern Caucasus (fig. 346). Timber-grave influences were, however, not very strong, and the material culture was chiefly oriented toward the south.

Axes were always numerous in the Caucasus, and during the end of the second and the beginning of the first millennium B.C. the whole gamut of shaft-hole axes was represented in the western part of the region. The axe type represented in the hoard of Borgustanskaja (fig. 344, *5*) is more or less confined to the northern Caucasus and has its predecessors in axes with grooved butts from the earlier phase (cf. fig. 343); it is the precursor of the classical Koban axe.

The other group of axes is called the "Colchidic" type. They are found in great numbers in western Georgia, northeastern Anatolia, and also over the eastern coast line of the Black Sea. One of the hoards

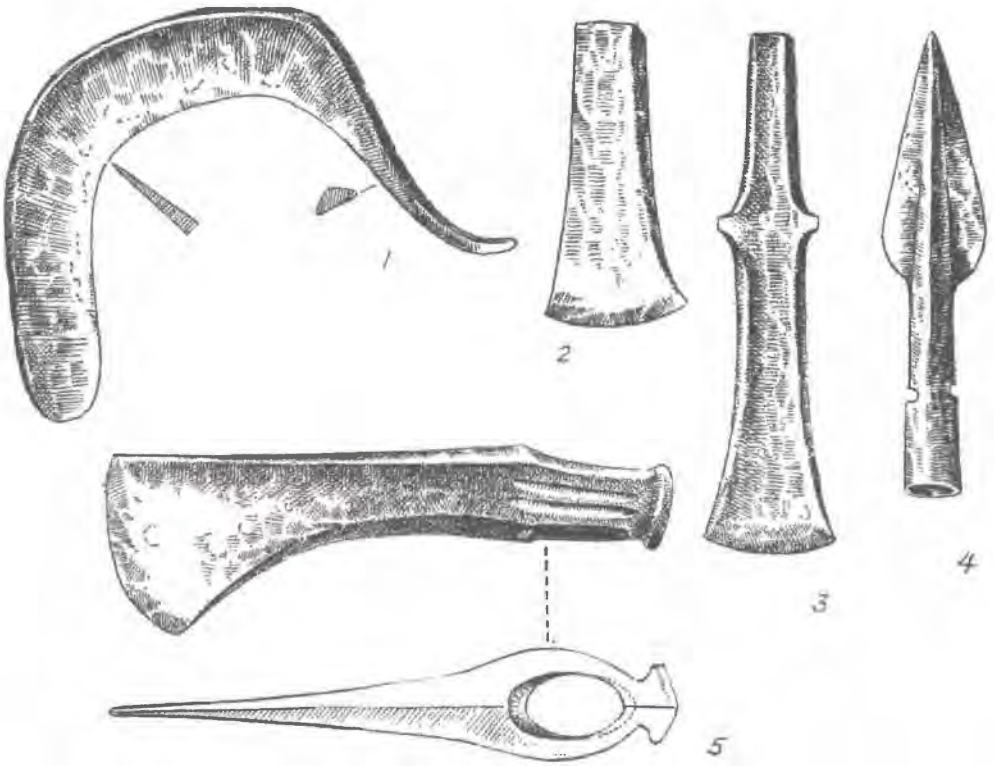


FIG. 344. Hoard of Borgustanskaja, west of Essentuki, northern Caucasus. **1**, copper sickle; **2**, flat axe; **3**, lugged adze; **4**, spearhead; **5**, axe. Scale approx. 1/3. *After* Iessen, 1951.

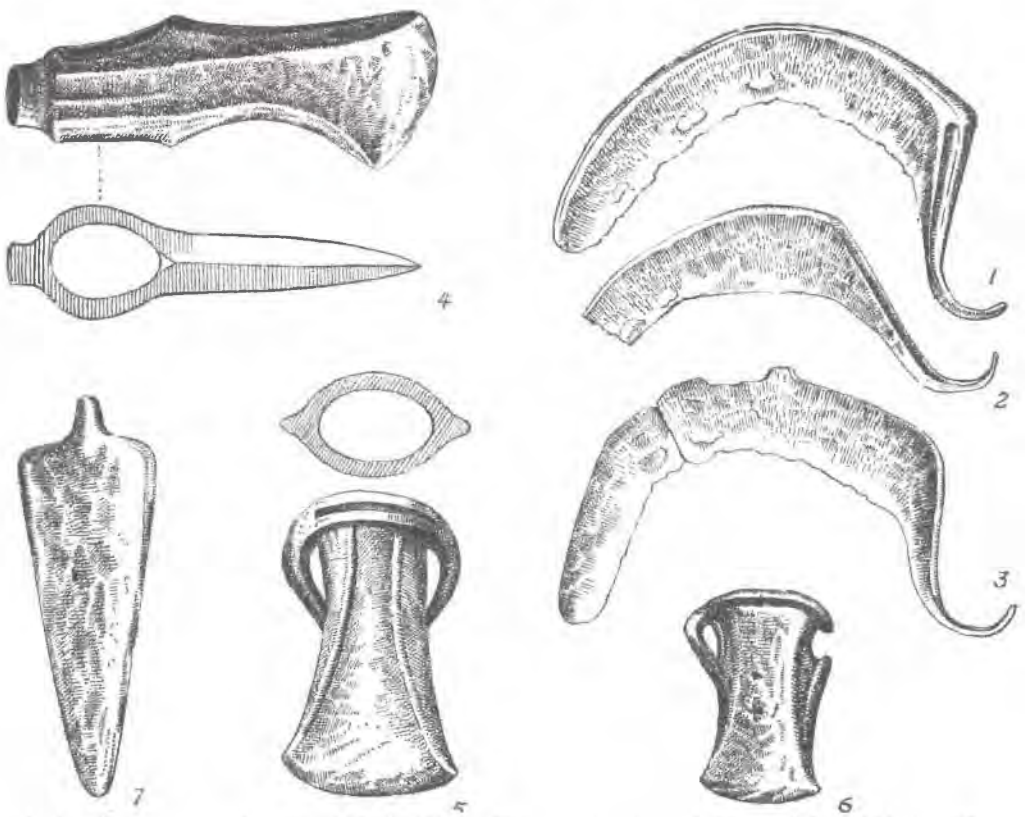


FIG. 345. Bekeshevskaja hoard from the upper Kuma River area, northern Caucasus. **1-3**, copper sickles; **4**, shaft-hole axe; **5, 6**, socketed celts of the western Ukrainian type; **7**, dagger. Scale approx. 1/3. *After* Iessen, 1951.

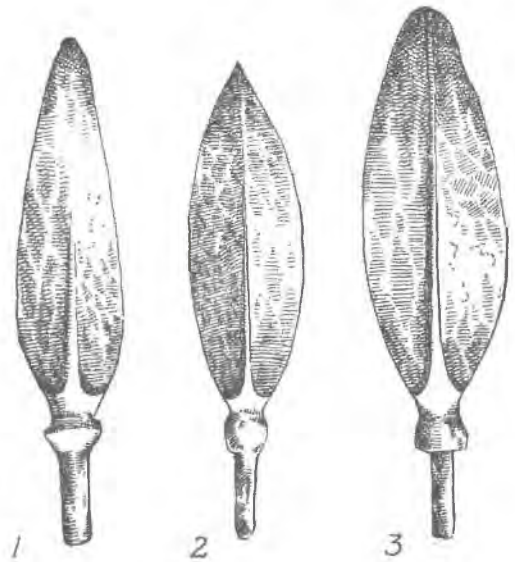


FIG. 346. Tanged spearheads of Timber-grave type found in the northern Caucasus. **1,** Kurp, Nal'chik Museum; **2, 3,** from the barrows at Udobnaja station. Scale approx. 1/2. *After* Krupnov, 1957.

which contained several types of axes, Colchidic and North Caucasian, is that of Pitsunda on the Black Sea, found in 1935 (finds in the Museum of Sukhumi). Five Pitsunda axes are reproduced in figure 347; the axes shown in figure 347, *4*, *5* are the Colchidic type; and the axes in figure 347, *2*, *3* are North Caucasian or Koban. The short axe (fig. 347, *1*) has numerous parallels in the Kuban area and around Sochi on the Black Sea coast (Iessen, 1951, figs. 25, 27, 28).

In Kerch, Crimea, a lugged adze decorated with a symbolic horned animal figure and a solar emblem above its head (fig. 348) was found. Similar adzes were present in the hoard of Ordu in northeastern

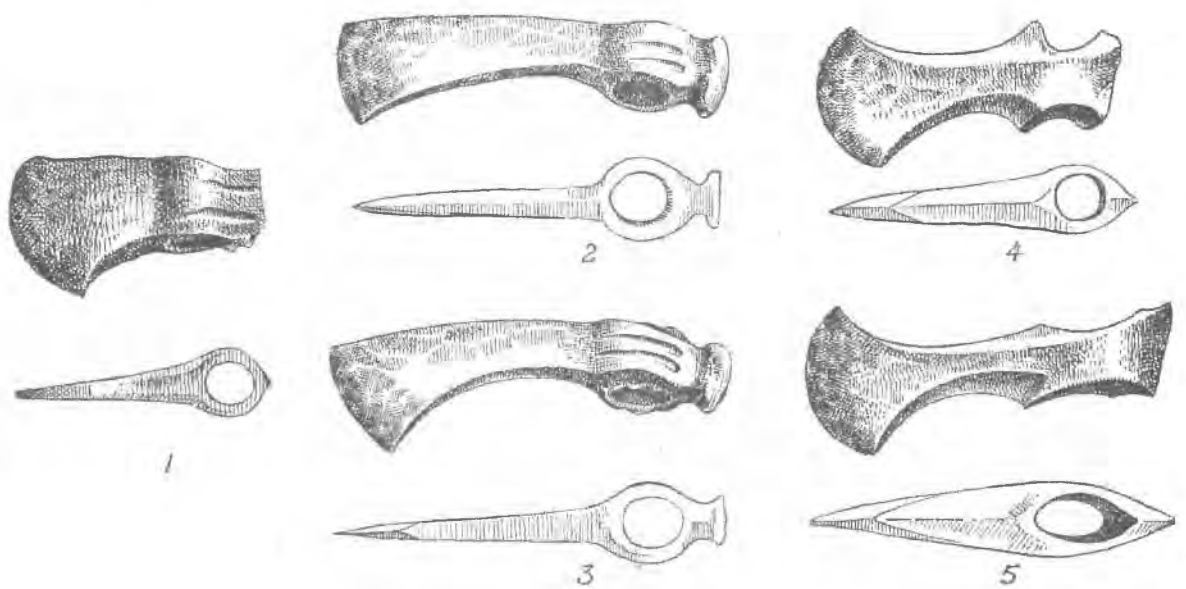


FIG. 347. Axes from the hoard of Pitsunda, near Sukhumi, western Caucasus. Scale approx. 1/3. *After* Iessen, 1951.

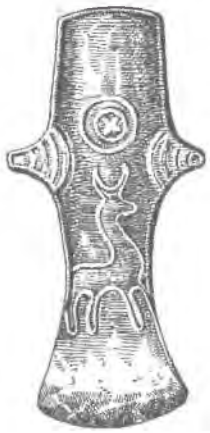


FIG. 348. Lugged adze from Kerch, Crimea.
Scale approx. 1/3. *After* Tallgren, 1926.

Anatolia (fig. 349, *1*) in association with a Colchidic axe (fig. 349, *2*) and grooved axes (fig. 349, *5*).

The above-mentioned hoards and isolated finds in the stratified Transcaucasian cemetery of Samtavro in Mtskheta are parallel to the horizon typified by arc fibulae (fig. 350, *5*), Kakhetian daggers with handles that end in fretwork pommels (fig. 350, *10*), spearheads with U-shaped sockets and pronounced leaf-shaped points (fig. 350, *8*), lugged adzes (fig. 350, *3*), short axes with circular blades (fig. 350, *1*), triangular arrowheads with a hole in the middle (fig. 350, *6*, *7*), fret-worked ornaments and pendants, pins with spiral and small globular heads (fig. 350, *11*, *12*), and other finds. Iron was already extensively used in Transcaucasia, especially for dagger blades; by the tenth to ninth centuries B.C. even axes were made of iron (Samtavro grave 70; Abramishvili, 1957, *see* illustrated chronological table). The presence

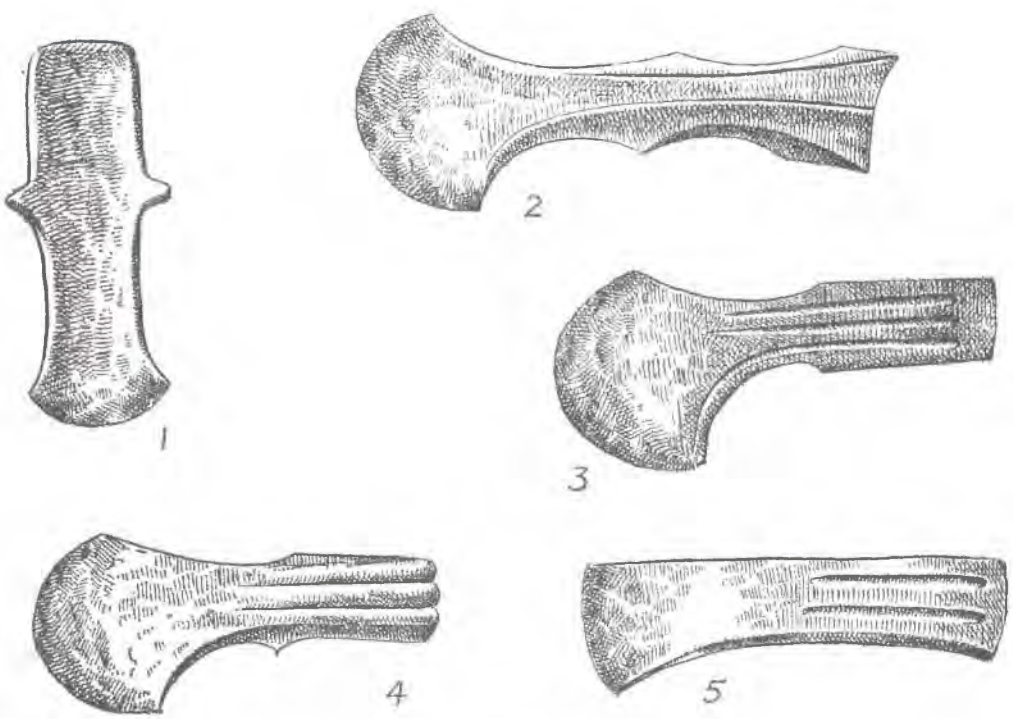


FIG. 349. The hoard of Ordu, northeastern Anatolia. **1**, lugged adze; **2**, Colchidic axe; **3-5**, grooved axes typical of Colchidic culture. Scale approx. 2/5. *After* Przeworski, 1939.

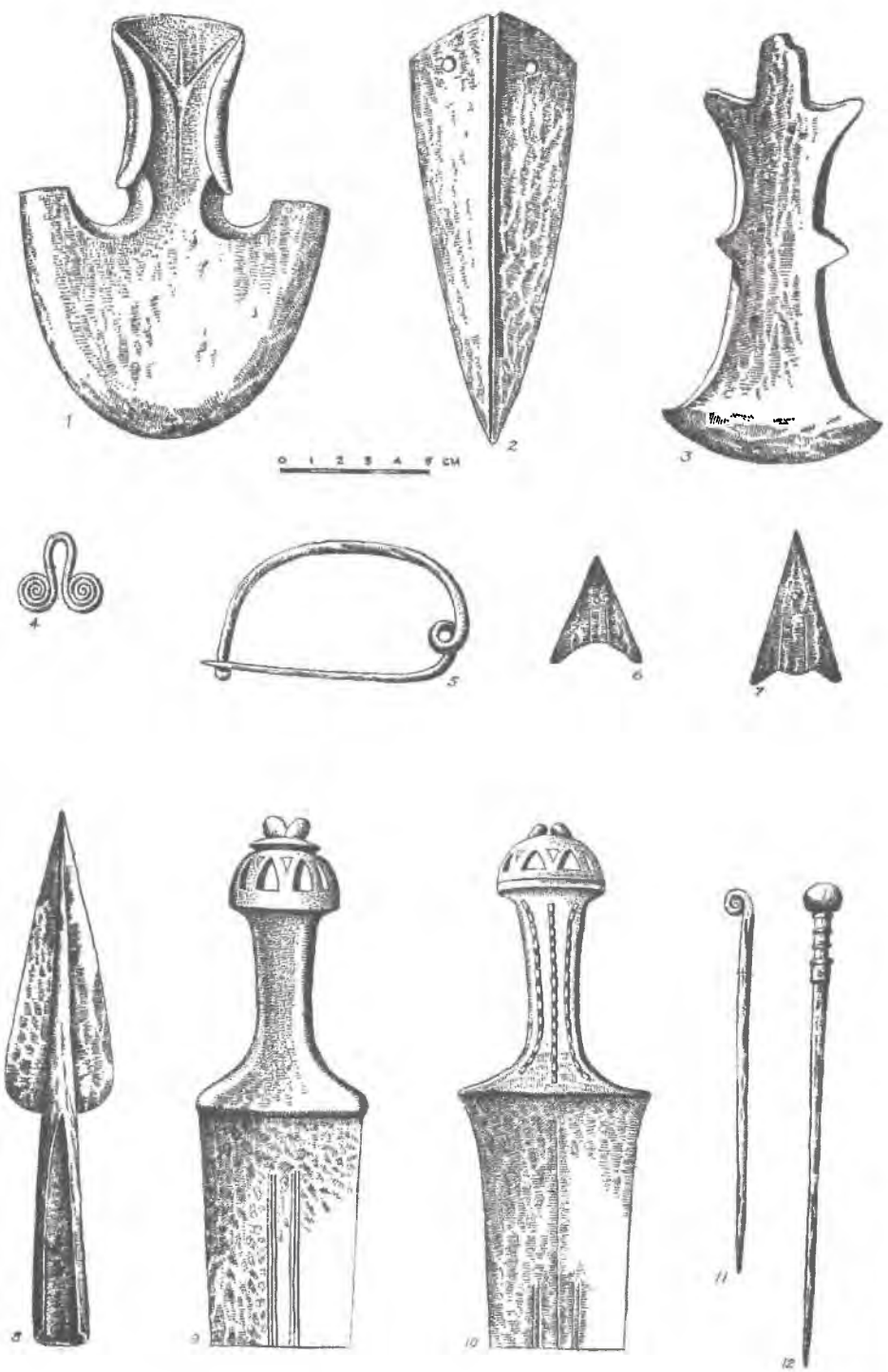


FIG. 350. Finds from the Samtavro II graves, Georgia. **1**, axe; **2**, dagger blade; **3**, lugged adze; **4**, double-spiral pendant; **5**, arc fibula; **6**, **7**, bronze arrowheads spearhead; **8**, spearhead; **9**, **10**, daggers (upper parts); **11**, **12**, pins. *After* Chantre, 1886.

of the arc fibulae of Aegean type (like that in fig. 350, *5*) may indicate a date of the eleventh or tenth centuries B.C. This Samtavro horizon is overlaid with graves contemporary with the cemetery of Koban.

In addition to evidence of North Pontic-Colchidic connections there were artifacts pointing to the eastern parts of Transcaucasia – in particular the Podgortsa treasure, which consisted of a bronze belt-plate, ornamented with animal motifs, and two round convex plates (pl. 96). These bronzes within a pot were found in the village of Podgortsa, south of Kiev on the lower Dnieper (Uvarova, 1900, p. 13, pl. 13 bis; Tallgren, 1926, p. 159). The animals portrayed on the belt-plate have a mythical appearance, and are in a crawling or antithetic position, some of them with enormous horns of lunar or deer-horn shape attached to the front of the head, and a body like that of a horse. Some resemble panthers, but their heads are like those of griffins. Parts of the animal's body were filled out with striations or a herringbone motif; geometrically decorated bands adorned the edges of the belt. Close analogies for belt-plates with incised animal scenes are found in the Urartu culture of the beginning of the first millennium B.C. (cf. Morgan, 1889, p. 164, fig. 190: Piotrovskij, 1939, fig. 35; Kuftin, 1941, pl. 25). The fantastic animal figures of the Podgortsa belt-plate type can be considered as predecessors of the Koban animal.

The above classification is summarized in the chronological table V.

TABLE V

Chronological table of the North Pontic and Caucasian cultures and their contemporaneity with the central European Únětice-Tumulus-Urnfield culture

Approximate dates	*Periods*	*North Pontic Phases*	*North Caucasian Kuban and Koban*	*Transcaucasian Colchidic*	*Central Europe*
850/800 B. C.		Late Timber-grave culture	Borgustanskaja	Samtavro III Esheri III	Late Urnfield
1100	Stone cist-grave period	Berislav	Berislav	Samtavro II Beshtasheni	Early Urnfield
1250/1200		Rybakovka	Kostromskaja	Samtavro I Trialeti	Middle Bronze Age (Tumulus)
1450/1400		Borodino	Faskau	Esheri II	Late Únětice
1550/1500		Kut			Classical Únětice
ca. 1650 (?)		Usatovo and Babino			Early Únětice
ca. 1800	Catacomb-grave period	Catacomb-grave culture	Middle Kuban stage of metallurgy	Esheri I Sachkhere	Corded
ca. 2000					

C. WERE THE NORTH PONTIC PEOPLE THE HISTORICAL CIMMERIANS?

The name "Cimmerian" appears in historical sources as that of the people driven out of the north Pontic area by the Scythians, who were responsible for their disintegration. Thus written documents merely touch the last moments of the Cimmerians. But regardless of how sparse the historical records are, they are extremely helpful for archaeological research. The identification of the Cimmerians in the written sources with the culture of the north Pontic plain at the end of the Bronze Age and beginning of the Iron Age, gives us an understanding of the Pre-Scythian era. These records help establish the point when Cimmerian history ends and Scythian history begins.

The Cimmerians are mentioned in Assyrian and Greek sources, but neither sources date back to a period earlier than the eighth century B.C. The Cimmerians are also referred to in the Bible, in the Book of Genesis, in the so-called table of nations where the name "Gomer" stands for one of the sons of Jafet; "Gomer" is very probably connected with the name "Gamir", a designation of the land of the Cimmerians. "Gimirrai", the enemies of Urartu, and the land of "Gamirr", which seems to have been located west and north of the upper Euphrates in northeastern Cappadocia and the western Caucasus, north of Urmia, were mentioned in a letter of the Assyrian prospector, Ashshurisua, to King Sargon II (722-705 B.C.). Another letter of the prospector Aradsin to the head of the palace relates that the "Cimmerians came from the region of Manna and invaded the land of Urartu" (*Vestnik Drevnej Istorii*, 1947, pp. 1, 266-268). In the documents of the seventh century B.C., from the dynasties of Esarhaddon (681-668 B.C.) and of his son, Ashur-bani-apal, we are told that the Cimmerians were a numerous and warlike people. Their leader was called Ligdamis (Dugdamme) who invaded Lydia and conquered Sardis but was finally defeated by Ashur-bani-apal. In the seventh century B.C. the Assyrian sources begin to mention the Scythians along with the Cimmerians – the "Ashkuza", as they were called. They also came to western Asia from the north, through the Caucasus (Krupnov, 1960, p. 67).

The Greek sources, although less reliable than the Assyrian, also give some interesting and important comments on the Cimmerians, giving us some picture of the last chapter of the Cimmerian history, north of the Black Sea. The earliest source is Homer's *Odyssey* were Cimmerians are mentioned several times. According to Homer, Cimmerians lived "around the ocean", in a mythical country of fog and darkness (*Odyssey*, XI, 14). This is only a vague reference which may indicate that in Homer's times (the eighth or the ninth century B.C.) the Cimmerian kingdom did not play a leading role in the north Pontic area; the Scythians were dominant, and called "mare milkers" by Homer. When Aristeas Proconessus, not later than the seventh century B.C., traveled to east Pontic lands he met only the Scythians there (Artamonov, 1950, p. 37; *see* reference for the Timber-grave culture). Later sources tell of a great Cimmerian kingdom occupying the northern shores of the Black Sea, its headquarters on both shores of the Straits of Kerch. Herodotus, Strabo, and Aeschylus give the names of places connected with Cimmerians. The statements of the later authors are restatements of Herodotus (fifth century B.C.) and others, who probably used an early written source or recorded oral traditions; for in Herodotus' time, Cimmerians no longer dominated the Black Sea area. Herodotus (IV, 11) tells of the conquest of the Pontic area by the Scythians, as follows: "The country which the Scythians now inhabit is said to have formerly belonged to the Cimmerians. The Cimmerians, when the Scythians invaded them, deliberated, seeing a large army was coming against them; however, their opinions were divided, which both vehemently upheld, though that of the kings was the best; for the opinion of the people was that it was necessary to retire, and that there was no need to hazard a battle against superior numbers; but the opinion of the kings was, that they should fight to the last for their country against the invaders. When, therefore, neither the people would submit to the kings, nor the kings to the people, and one party resolved to depart without fighting, and abandon the country to the invaders, while the kings determined to die and be buried in their own country; when they had come to this resolution, having divided, and being equal in numbers, they fought with one another; and the one party, the royal race, having all

perished, the people of the Cimmerians buried them near the river Tyras [i.e. Dniester]; and their sepulchre is still to be seen. After they had buried them, they then abandoned the country; and the Scythians coming up, took possession of the deserted country." Further, he writes (Herodotus, IV, 12): "And there are now in Scythia Cimmerian fortifications and Cimmerian straits (Porthmia); there is also a district named Cimmeria, and a bosphorus called Cimmerikon." These geographical names locate the Cimmerians around the Kerch and Taman peninsulas. It is probable that when the first Greek colonists settled north of the Black Sea, they found many actual traces of the Cimmerians (Rostovtsev, 1922, p. 37).

The sources tell us that the Cimmerians were driven out by the Scythians, into Asia through the Caucasus. To quote Herodotus: "And it is evident that the Scythians, pursuing them, and entering the Median territory, missed their way, for the Cimmerians fled constantly by the sea-coast; whereas the Scythians pursued, keeping the Caucasus on the right" (Herodotus, IV, 12). Going on this description, scholars now unanimously agree that the Cimmerians fled from the northwestern Caucasus through Meotia and Colchida, that is, along the eastern shores of the Sea of Azov and the Black Sea. Only by this route could they arrive at Cappadocia, Lydia, and the northeastern limits of the kingdom of Urartu, where they are mentioned in Assyrian records. The Scythians could have used either the Georgian pass, immediately east of the Kazbek mountain, or the pass of Derbent along the eastern Caucasus and the western shore of the Caspian Sea (Krupnov, 1960, p. 67: map of the Cimmerian and Scythian campaigns). Marching through the eastern Caucasus, the Scythians reached Media and the southeastern parts of Urartu.

Having now followed the archaeological story of the North Pontic culture from its period of greatest prosperity in the early second millennium B.C. to the period when an undisturbed cultural continuum existed only in the northern Caucasus and the Crimea – the end and the beginning of the first millennium B.C. – it becomes obvious that the North Pontic people must have been Cimmerians. Before they went into oblivion history caught up with them and allowed us to learn the full story of the Cimmerian kingdom created by a vigorous group of the early Indo-Europeans. The reader will find the story of how they lost their territory throughout the second millennium B.C. in the chapter on the Timber-grave culture.

Lingering traditions of the people who lived around the ocean, and Cimmerian names were not the only remnants of the Cimmerians. Their cultural traditions became an integral part of the later Scythian culture. In areas securely protected, like the Crimea and the delta of the Kuban River, actual Cimmerian culture survived for several hundred years until these areas united with the Greek colonies to form the kingdom of Bosporus. The so-called Kizil-Koba culture of the Crimea of the sixth to seventh centuries B.C. is a survival of the North Pontic Bronze Age culture.

Scythians and Cimmerians were related linguistically, the languages of both probably belonging to the Iranian group of languages. Some names of the Cimmerian leaders have been preserved in Assyrian sources and show Iranian linguistic forms; for instance, the name *Šandakšatru* is comparable to old Iranian *Čandrašadra* which means "having brilliant leadership". Hence, at least the upper class of the Cimmerians spoke a language of the Iranian language group, according to Vasmer (1941, p. 11).

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IX

THE PROTO-SCYTHIAN TIMBER-GRAVE CULTURE IN THE LOWER VOLGA BASIN AND ITS WESTWARD EXPANSION

A. GENERAL CHARACTERISTICS

The name "Timber-grave" for this culture is derived from the type of grave. In Russian it is called "Srubna", from "srub" meaning "timber". Actually, the term refers to a western grouping of the enormous cultural bloc distributed over the steppe-forest and steppe zones from southern Russia in the west to the upper Yenisei River in the east (fig. 351). The southern Siberian branch is called the "Andronovo culture", while "Tazabag'jab" refers to the western Kazakhstan branch east and south of the Sea of Aral.

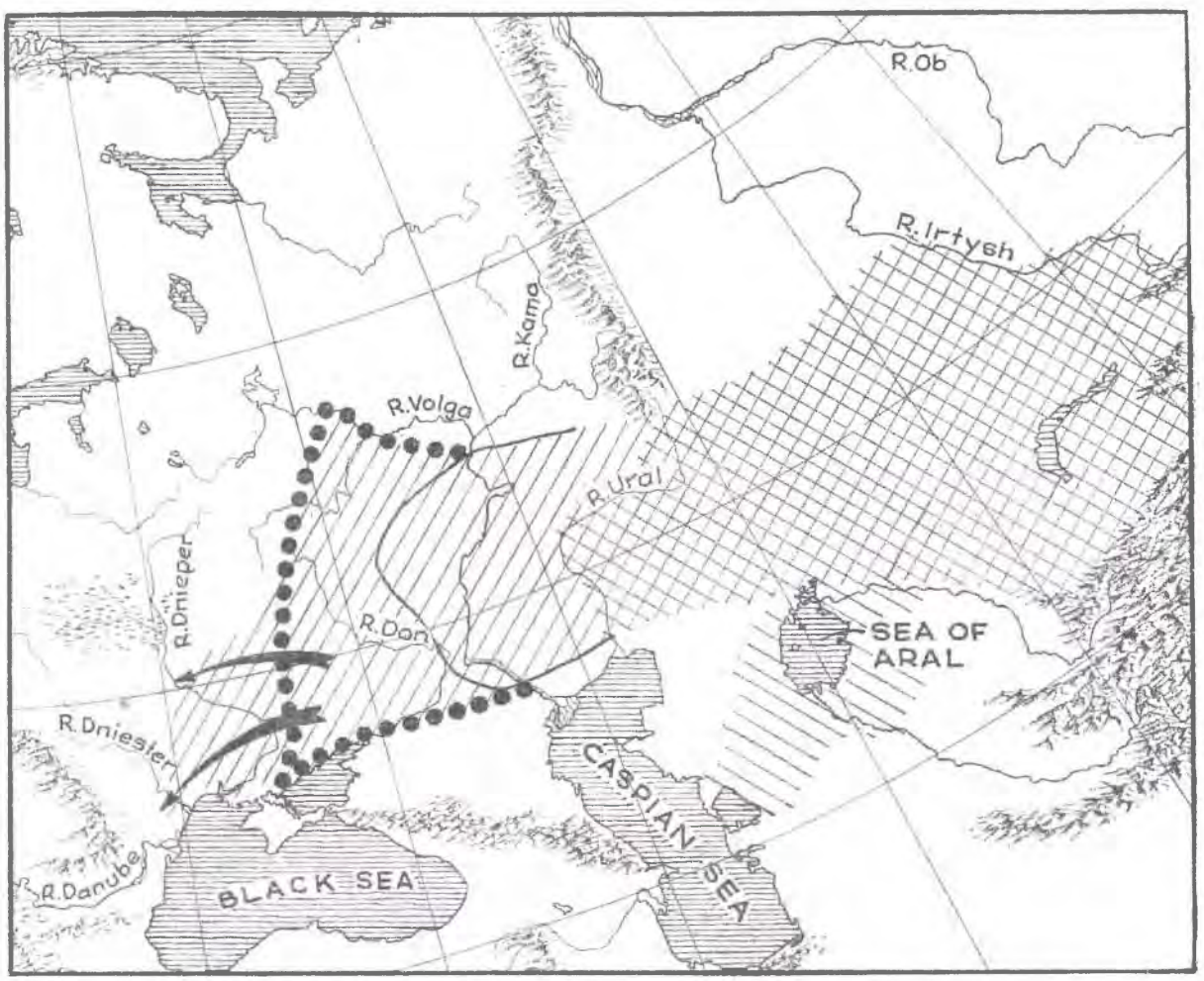


FIG. 351. Distribution of the Timber-grave and Andronovo-Tazabag'jab bloc over the Eurasian forest steppe and steppe zone and its western expansion.
Key: solid line — before 1800 B.C.; dots — *ca.* 1800 B.C.; arrows — *ca.* 1100 B.C.

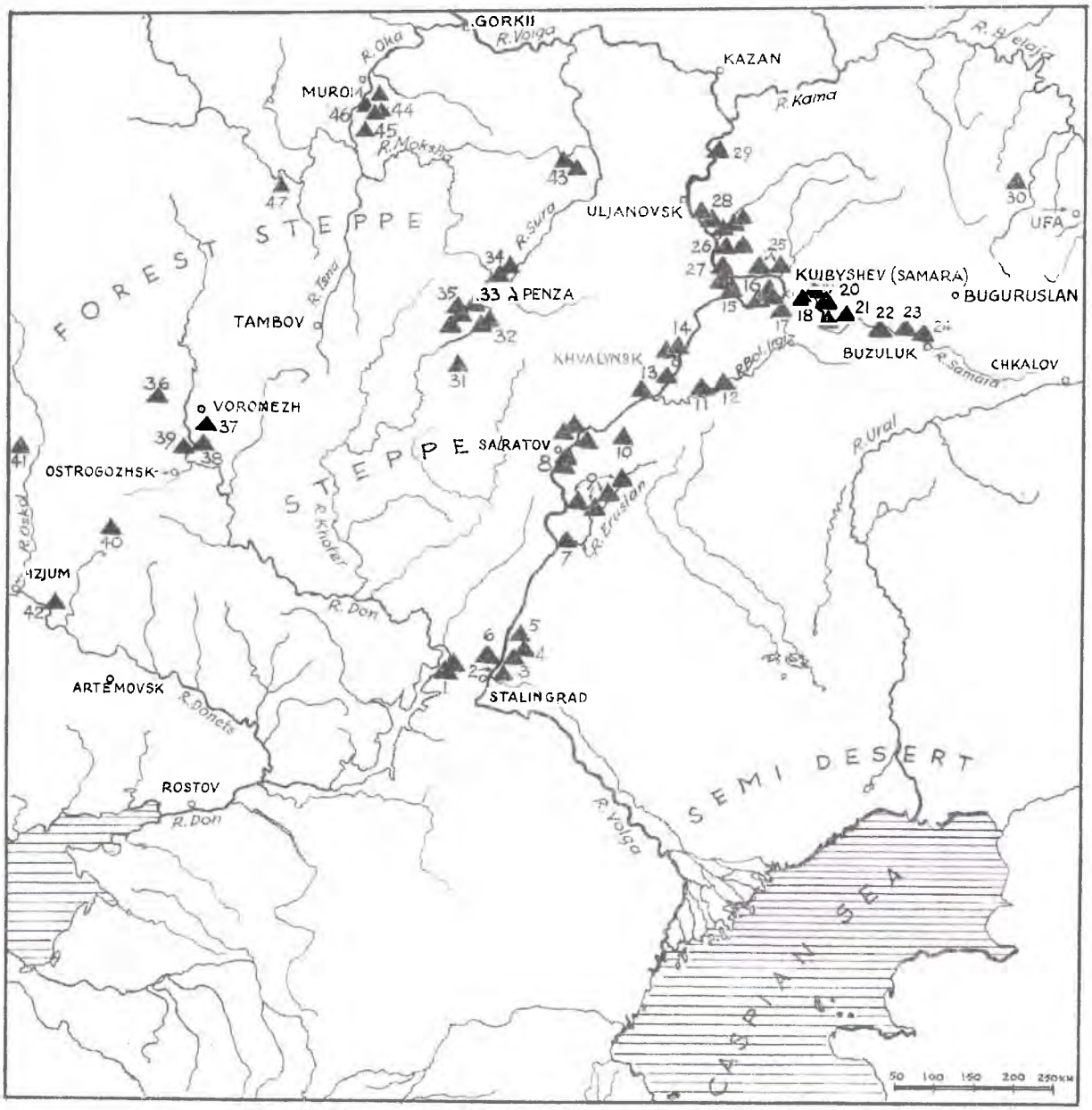


FIG. 352. Timber-grave sites in southern Russia, mentioned in text.

Key to Fig. 352:

1. Ljapichev habitation site
2. Ilovatka cemetery
3. Bykovo cemetery
4. Politotdelsk cemetery
5. Skatovka cemetery
6. Kalinovka cemetery
7. Berezhnovka cemetery
8. Pokrovsk cemetery and other sites around Pokrovsk (Engels)
9. Staraja Poltavka cemetery and other sites on R. Eruslan
10. Borodaevka cemetery
11. Uspenska habitation site
12. Maksjutovo habitation site
13. Ivanovka habitation site
14. Sosnovaja Maza hoard
15. Komarovka cemetery
16. Tsarev hoard
17. Egorevskoe habitation site
18. Grachevskij Sad habitation site
19. Bezymianka habitation site
20. Kinel find
21. Marychevka (Poltavka phase) habitation site
22. Derzhavino habitation site
23. Sorochinskoe habitation site
24. Koltubanka hoard or grave
25. Nikol'skoe habitation site
26. Khrjashchevka cemetery, Pervoe and Vtoroe Suskan habitation sites
27. Jagodnoe cemetery
28. Krestovo habitation site; Kajbely cemeteries and habitation site; Voskresenskoe; Moechnoe Ozero habitation sites
29. Balyma habitation site
30. Ibrakaj habitation site
31. Elan habitation site
32. Nadezhdino-Kurakino habitation site
33-34. Zimnitsa, I and II, near Mokshan, and Volchij Ovrag near Pustyn, habitation site
35. Ozimenki habitation site
36. Skakun hoard

37. Kievka cemetery
38. Semidvorki habitation site
39. Kostenki habitation site
40. Gerasimovka habitation site
41. Lukjanovka cemetery
42. Nikolaevka cemetery
43. Sabancheevo hoard; Piksjasi habitation site and cemetery
44. Malo Okulovo cemetery
45. Podbornoe habitation site
46. Other sites in the district of Murom (Pozdnjakovo, Veletma, Malyj Bor, Jefanovo)
47. Chernaja Gora

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Veletma, site in the district of Murom (46)
Volchij Ovrag, near Pustyn, habitation site (34)
Voskresenskoe habitation site (28)
Vtoroe Suskan habitation site (26)
Zimnitsa I and II, near Mokshan, habitation sites (33)

The burial rites and the pottery, stone, and metal artifacts of this culture although fundamentally alike between the Don River and Yenisei, are nevertheless distinguishable in the west and in the east because of local features resulting from geographical position. Peoples living on the boundaries of the immense Eurasian steppe were bound to come into closer contact with their immediate neighbors. The Andronovians were exposed to eastern influences through the westward expansions of Mongol peoples such as Karasuk in the fourteenth century B.C., while the Tazabag' jabians were influenced in the south by the central Asiatic Sujargan people. The Timber-grave people themselves constantly expanded westwards, acquiring some cultural elements from the peoples whose lands they occupied. The Timber-grave people invaded the North Pontic territory in the early part of the second millennium B.C., and by the end of the Bronze Age they occupied nearly all of it. Through expansion they also came in contact with the Fat'janovians in central Russia, with the Volosovo-Sejma hunter-fisher population of eastern central Russia, and with their kinsmen in the Middle Volga basin, the Turbino people. The Timber-grave people are comparable to the Scythians in their restless move westward, constantly acquiring new stimuli for the enrichment of their culture. By the end of the Bronze Age the Timber-grave people had grown so powerful that they threatened the Central European cultures, the Caucasian region, and the Near Eastern kingdoms.

Early Timber-grave sites are confined to southern Russia in the precise geographical sense: the lower Volga basin to the Don River in the West (fig. 352). The Don River and Donets River basins as well as the area north of the Sea of Azov were occupied somewhere around 1800 B.C.; the lower Dnieper and the lower Dniester area were occupied about 1100 B.C. (fig. 351).

Sites are concentrated in the Volga basin, one of the best explored areas in Russia. Discoveries of barrows including timber-graves of various periods, predominated over all other finds. The number of

excavated habitation sites with remains of dwellings has rapidly increased since World War II. The amount of excavated materials has tripled since the beginning of this century when Gorodtsov excavated in the basins of the Don and Donets (Gorodtsov, 1905a, 1905b, 1907a, 1907b). In the 1920's, important finds were made in the lower Volga area by Rykov, Rau, and Golmsten (Rykov, 1927; Rau, 1928, 1929; Golmsten, 1925, 1928, 1938). When Tallgren published his *Pontide Préscythique* in 1926, he used chiefly Gorodtsov's reports and Rykov's materials from the excavations of the cemetery of Pokrovsk (Engels) near Saratov, and reports of a few isolated finds and hoards, such as Sosnovaja Maza, made before World War I. In the 1930's and 1940's not many publications of importance appeared, except for a few short reports. Particularly intensive excavations were made in the 1950's. Voluminous monographs appeared in 1954, 1958, and 1959, in which the results of the Kujbyshev expedition of 1950-1954 and the Stalingrad expedition of 1951-1955 were published. They include good reports on Chalcolithic, Bronze, and Iron Age finds by N. Ja. Merpert, A. Kh. Khalikov, K. F. Smirnov, I. V. Sinitsyn, A. E. Alikhova, N. V. Trubnikova, V. P. Shilov, and others, which are very valuable for Timber-grave chronology. In 1955, Krivtsova-Grakova made an attempt to describe Late Bronze Age cultures in the steppe zone of the Volga area and north of the Black Sea. Her monograph appeared just before the large-scale excavations were completed; therefore it could not adequately clarify the chronological and cultural position of the Timber-grave culture. For the chronology of the Timber-grave culture, the excavations and observations by Merpert in the district of Kujbyshev (Merpert, 1958) and those of K. F. Smirnov (Smirnov, 1959; 1960), Sinitsyn (Sinitsyn, 1959), Shilov (Shilov, 1959), and others in the Stalingrad and Saratov areas are of outstanding value.

The Timber-grave culture had its roots in the Kurgan Pit-grave cultures of the lower Volga basin. Clear continuity from the Chalcolithic period at the end of the third or the very beginning of the second millennium B.C. is recognizable in burial and other religious rites, in dwellings, and in physical type although gradual changes in economy, technology, and social structure occurred. The first signs of local metallurgy appeared, and flat-bottomed pots replaced the ancient round-bottomed pots around 2000 B.C. From this period the Timber-grave culture continued through its early, classical, and late stages until the Scythian era began in the eighth century B.C.

Measurements of skeletons from the lower Volga area have shown that the Timber-grave people were related in general to the Kurgan people of the Pit-grave period. However, they were more delicate, with less-developed brow ridges, a straighter forehead and a narrower face (conclusions based on the examination of 14 skeletons: Debets, 1936). The close relationship between the Kurgan people of the Chalcolithic stage and the Timber-grave people is also noted by Gerasimov, who made several reconstructions of the face, using the skulls of the middle Volga sites (Gerasimov, 1955, pp. 476-477) (pl. 97, *2*). The 44 skulls from the cemeteries of Jagodnoe and Khrjashchevka in the district of Kujbyshev were also the usual Timber-grave type, Europoid and dolichocephalic, except for two which were brachycephalic and in Mongoloid, appearance and bore a general resemblance to the Ananino people of the Early Iron Age. This difference in physical type led Debets to conclude that the Timber-grave people came to the middle Volga area from the south and intermarried with a local population of Mongoloid appearance (Debets, 1954, pp. 485-493).

B. HABITATION SITES AND ECONOMY

Villages were built on the river terraces. At any one site not more than ten houses were found; the settlement pattern was irregular (fig. 353). Hence, we may conclude that the number of families living in one village probably did not exceed 20, comprising some 100 to 200 people. The houses were semi-subterranean and rectangular. Their size ranged from small (5-8 m in length) in the early and classical periods, to long and wide houses (20 m and more in length) during the late Timber-grave period.

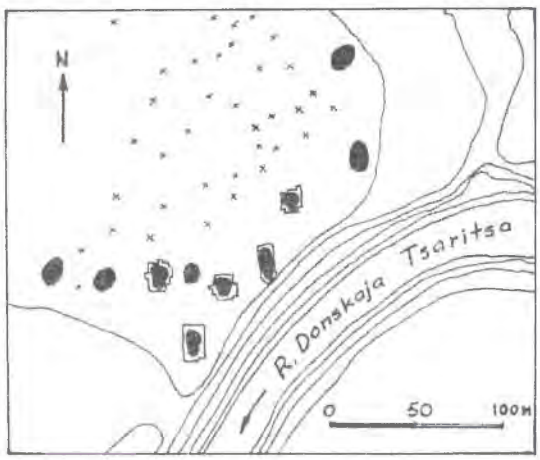


FIG. 353. Plan of the village at Ljapichev, west of Stalingrad on the lower Don. *After* Grjaznov, 1953.

Dwellings were sunk into the ground about 1.5 m. About 120-130 square meters of earth had to be removed for the larger houses. The shape was usually trough or basin-like. The floors were uneven; traces of posts for supporting a roof, usually a saddleback covered with grass, straw, or earth, were found. This kind of house was warm during the winter, heat being retained through the insulation of the earth. The houses in the sites Maksjutovo and Uspenka on the Irgiz River, east of the Volga in the district of Saratov (Sinitsyn, 1949), at Voznesenskoe near Uljanovsk (Trubnikova, 1954), and at the Suskan River in the site of Pervoe Suskan in the district of Kujbyshev (Merpert, 1958) had the unique feature of one or more side-niches and earthen beds up to 3 m wide, which were probably once covered with planks. Traces of hearths were found in various places in the living area, sometimes sunk into the ground within a niche (fig. 354).

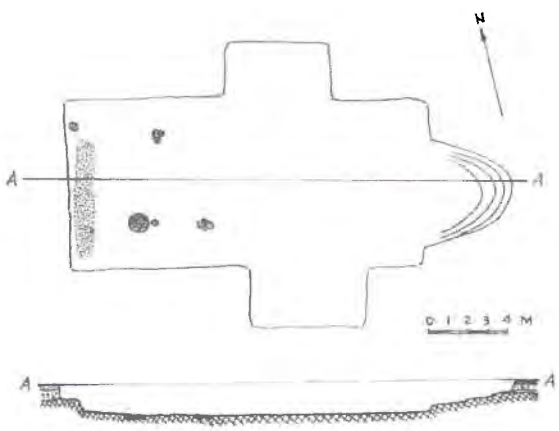


FIG. 354. Plan and cross-section of semisubterranean dwelling No. 3 of Uspenka village, east of the lower Volga, district of Saratov. *After* Sinitsyn, 1949.

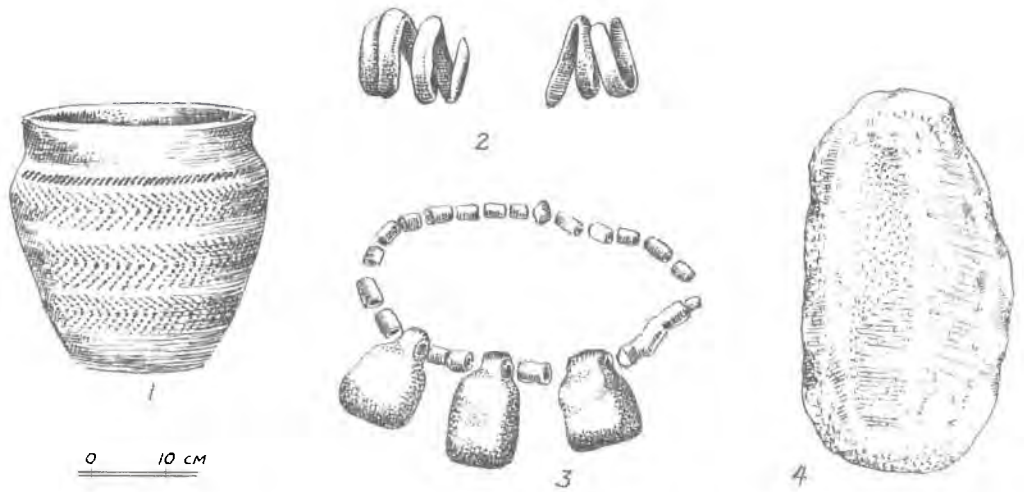


FIG. 355. Early Timber-grave inventory. Berezhnovka cemetery, district of Stalingrad (kurgan No. 32, grave No. 5). **1**, pot; **2**, copper spirals; **3**, necklace of cylindrical copper beads and pendants of white stone; **4**, stone pestle. *After* Sinitsyn, 1954.

In the habitation area, appeared thousands of sherds belonging to large plain and decorated pots, as well as implements of bone (needles, awls, arrowheads, etc.), stone (pestles, rubber-stones, saddle-querns), and metal (awls, knives, sickles, axes). There was evidence of agriculture, stockbreeding, hunting, textile industry (clay whorls), and metallurgy.

Timber-grave people were thus not shepherds only, as they are often pictured. Farming was their occupation, along with stockbreeding; remains of wheat and millet were found. A large percentage of several kinds of weed seeds shows that the same fields were used for a considerable time (Minaeva and Fursaev, 1934, pp. 150-153). In nearly every habitation site pestles, flat oval querns, round rubber-stones, and hoe-like tools of stone were found. Some of the chisel-like tools of copper, fairly long with a broad edge, may have been ends of hoes, and have been found in several habitation sites (Alikhova, 1958, p. 161, fig. 4, *1*). Copper sickles are the usual find in habitation sites, graves, and hoards. In fact, according to the present finds, metal sickles appeared in the southern Ural center no later than they appeared in central Europe and the Caucasus. Pestles were laid in women's graves (fig. 355, *4*).

Wild animal bones appear in very small numbers; in many sites there are no bones of wild animals, or perhaps less than one percent (cf. the statistical table given by Tsalkin, 1958, p. 266). This suggests that the inhabitants of the villages were chiefly stockbreeders, and that hunting was only a secondary source of livelihood. Bones of beavers, badgers, hares, marmots, and dogs – animals typical of the steppe – were found (cf. Uspenka site: Sinitsyn, 1949). There is little evidence of fishing. In nearly all excavated sites the largest percentage of bones belongs to cattle; smaller percentages to sheep and horses; and the least to pigs (Sinitsyn, 1949, pp. 205, 216). At the habitation site of Ibrakaj in Bashkiria of the early classical period, there were cattle bones from 14 animals: horse bones from five animals, sheep and goat bones from four animals, and pig bones from one animal (Akhmerov, 1955, p. 85). In the site of Lake Moechnoe in the middle Volga area (the late Timber-grave period), of 4633 bones found, 53.8 per cent belonged to cattle, 23.7 per cent to sheep and goats, 15.6 per cent to horses, and 6.9 per cent to pigs (Alikhova, 1958, p. 179; a detailed analysis of faunal remains from the middle Volga sites is given by Tsalkin, 1958). Cattle bones predominated in graves, but sheep and pig bones also occurred. Horse bones, usually of young animals, regularly appear in the habitation sites among the remains of food (evidence from Uspenka site: Sinitsyn, 1947a, p. 152). The camel was evidently a domestic beast at this time, according to the bones found in several habitation sites near the city of Voronezh and in Alekseevskoe in the southern Urals (Krivtsova-Grakova, 1955, p. 53).

Meat and milk products played an important role in alimentary maintenance. In the better explored sites, deep storage pits containing pots with meat remains were found under the dwellings. Some pots were strainer-like and may have been used for milk products; Timber-grave people probably subsisted to a large extent on milk and cheese. One of the most interesting finds is a cellar-like storage pit under one of the houses of the Pervoe Suskan habitation site, district of Kujbyshev (fig. 356). It was almost 6 m deep; four layers separated by clay and timber were filled with pots and raw materials for tools. In such a deep storage pit the temperature was low and the inhabitants of the house could keep their

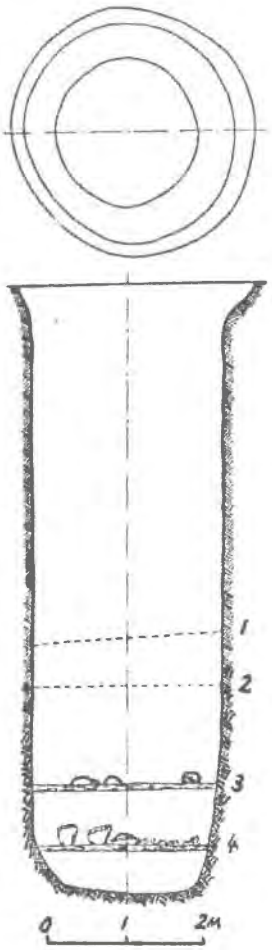


FIG. 356. Storage pit for meat and milk products found in the habitation site of Pervoe Suskan, district of Kujbyshev; **1-4**, layers. *After* Merpert, 1958.

products for a considerably longer time than out in the open. Pots of meat or of milk products could have been lowered by ropes. Some of the pots had two pairs of holes which were needed for fastening the rope. Some pots showed impressions of woven twigs, which may have belonged to baskets. This fact would explain the usage of baskets (Merpert, 1958, p. 113).

Clay molds, ingots, and slag were found in many habitation sites. Nevertheless, the Timber-grave culture in the Volga, Don, and Donets basins was not as rich in metal as were its eastern neighbors in the southern Urals, where there were sufficient sources of copper ore. The Timber-grave and the Andronovo people undoubtedly obtained copper ore from the southern Urals. Rich graves of metallurgists, containing all the equipment needed for the craft, indicate that local metallurgy was practised in the Volga area from the beginning of the second millennium B.C. Such graves show that a man who knew the casting processes was highly esteemed. (Cf. figs. 369 and 370.)

Analyses have shown that axes and daggers were composed chiefly of copper with an insignificant admixture of zinc, tin, nickel, iron, lead, or arsenic. The presence of nickel speaks for the use of copper ores from the southern Urals; the nearest sources of tin were in Altai, Transbaikalia, and Yakutia. Thus the Timber-grave people seem to have used exclusively the copper ores of the Ural mountains. Impurities could have occurred during the melting process. The hardness of the copper tools (the measured copper knives showed 84.9 kg/mm² hardness) indicates cold hammering after casting, since copper becomes harder when hammered (Khanin, 1960). The bivalved clay molds from the lower Volga area belong to the early and classical Timber-grave period; the late Timber-grave molds are usually sandstone. Axes, daggers, knives, chisels, and awls were produced locally. More complicates objects like ornaments – ornamental plates, pendants, and beads – were made by specialists in the southern Ural center, and thence exported to the west. The workshops and habitation sites in the southern Urals yielded a great number of molds for ornaments (cf. the Alekseevskoe workshop on the Tobol River: Krivtsova-Grakova, 1948). The distribution of identical ornaments in a wide area indicates the existence of trained craftsmen who kept the secrets of their trade. About the fourteenth century B.C. the southern Ural metallurgists were making various ornaments by embossing thin copper plates (*see below*, figs. 380, *10*; 382, *4-6*). In addition to copper, white metal (an alloy of antimony and lead with antimony predominating) was used for ornaments. Such ornaments were found in the cemetery of Ilovatka near Stalingrad: triangular, rhomboid, and double-spiral pendants of white metal were found on the skeleton of a small baby buried at the breast of an adult in a late Classical timber-grave (Smirnov, 1959, p. 223, fig. 8, *6*). The same baby was adorned with faïence beads. Antimony beads are known from the northeastern Caucasus (the cemetery of Khorochoj, fig. 47, *13-20*). Smirnov is probably right in his assumption that antimony was mported from the Caucasus.

C. ART, BURIAL RITES, AND OTHER OBSERVATIONS CONNECTED WITH RELIGION AND SOCIAL STRUCTURE

To judge the achievements of the Timber-grave people in the field of esthetics is not an easy matter. Actually, only pottery and ornaments yield any information. Perishable products such as textiles, leatherwork, and wood carvings have completely disappeared; yet we know that rugs and mats must have been made. No human or animal scultptures or idols of stone, clay, or wood were found. The style of pottery, copper, and bone artifacts is neither varied nor sophisticated. Art was entirely geometric, as we see from the decoration of pottery and of bone objects. The pottery designs varied from extremely simple to complicated combinations of horizontal hatched lines, zigzag bands and pointillé decorations, bands of interconnected rhomboids or triangles filled with various combinations and designs of incised dots, small rhomboids, crosses, swastikas, whipped-cord impressions, etc. (*see* below, fig. 374). The more complicated and beautiful designs seem to have been adopted from the North Pontic people of the Catacomb-grave period. In the habitation site of Lukjanovka on the Oskol River in the upper Don area the potsherds found were decorated with incised and stamped ornaments which had been filled with white paste (Krivtsova-Grakova, 1955, p. 90, fig. 18, *9-11*, *15*). Some of the pots from graves and habitation sites have peculiar figures incised on them – irregular crosses, rectangles, divided rectangles, rectangles enclosing bow figures, angles, Z-motifs, irregularly connected diagonal and horizontal lines, etc. (fig. 357, *1*, *2*). In all, about 20 pots from various sites carried these peculiar signs, which Soviet scholars consider to be inscriptions of a specifically Timber-grave kind (Formozov, 1953). I would prefer to regard the "inscriptions" as religious symbols: cross, sun or star motifs (fig. 357, *1*, *2*), horses and snakes (fig. 357, *3*, *4*) accompanied by some incidental incisions. If these represent an ancient Timber-grave writing, one would expect more regularity and more similarities between the figures. More evidence is needed for any adequate treatment of this problem. The sun, horse, and snake seem to have been predominant figures in religious symbolism.

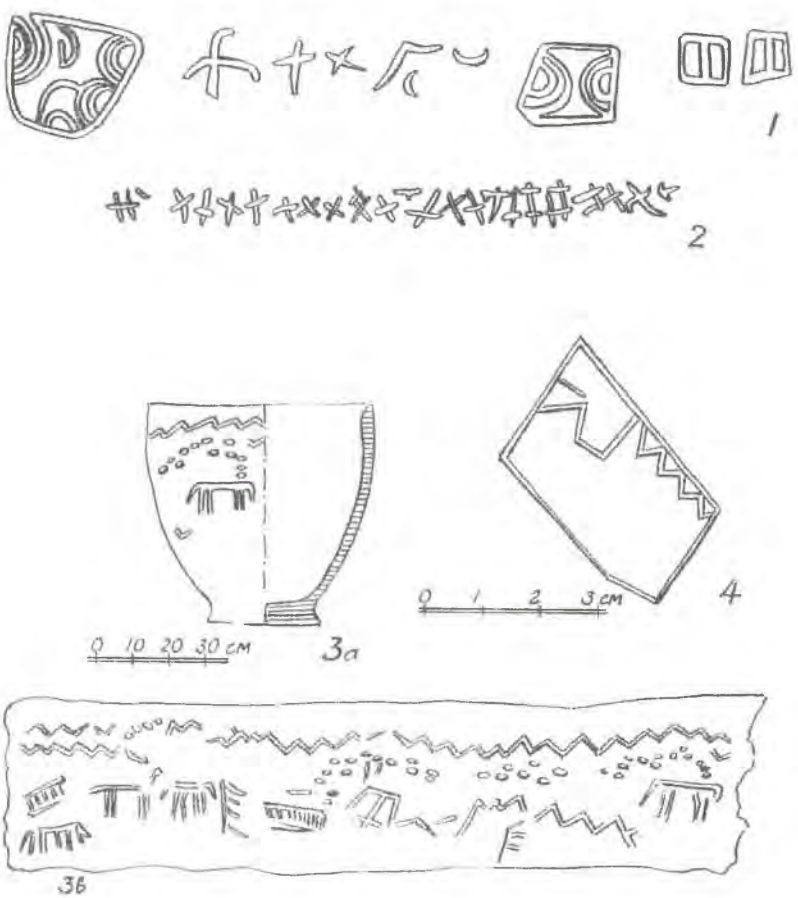


FIG. 357. Crosses, horses, snakes and other "inscriptions" on Timber-grave pots. **1**, Perejezdnaja near Bakhmut; **2**, Atkarsk, district of Saratov; **3**, Poljanki, district of Kazan; **4**, Veseloe near Melitopol'.
After Formozov, 1953 and 1958.

Burial rites are the chief source for at least a partial reconstruction of the cult of the dead and social structure. Hut-like structures in the pit-grave below the barrow were used for burial in this steppe zone from the appearance of the Kurgan culture onward. In the classical Timber-grave period these mortuary houses were solidly built of oak, birch, or pine. Of course, the timber was not well preserved in all graves; many huts had only fragments of the roof or joints in the corners of the grave left. But the evidence is sufficient to reconstruct the wooden constructions built of specially prepared beams and planks. Here I want to stress that the imitation of real houses in grave-building was not typical of the culture throughout its duration. This form was dominant only throughout the latter part of the classical period, chiefly during the last quarter or the second millennium B.C. There were no real "timber-graves" during the late Timber-grave period. The timber structure was built into the rectangular grave pit. The bottom of the pit was paved with stones covered with clay, river sand, or grass. The walls were built of horizontally placed boards, most frequently of oak, joined in the corners (figs. 358-360); the ceiling of horizontally placed oak boards. A flat or sometimes saddlebacked roof, usually of round birch logs up to 4 m in length was built above the main chamber in some graves, as for instance in Kamyshevakha, near Bakhmut (fig. 359). In the well-preserved timber structures of the barrow cemetery in Kajbely, in the middle Volga area, rows of vertical posts supported a flat roof and walls (fig. 361).

Outside the funerary house, bones of cattle or sheep were placed. The most numerous kinds of bones of sacrificial animals were skulls and legs stored in compact groups, used to symbolize the whole animal.

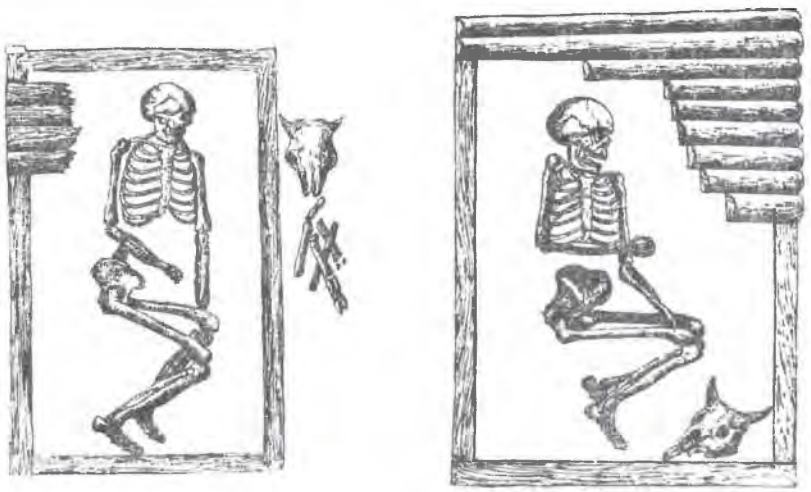


FIG. 358. Timber-graves from the kurgans around Izjum. *After* Gorodtsov, 1905.

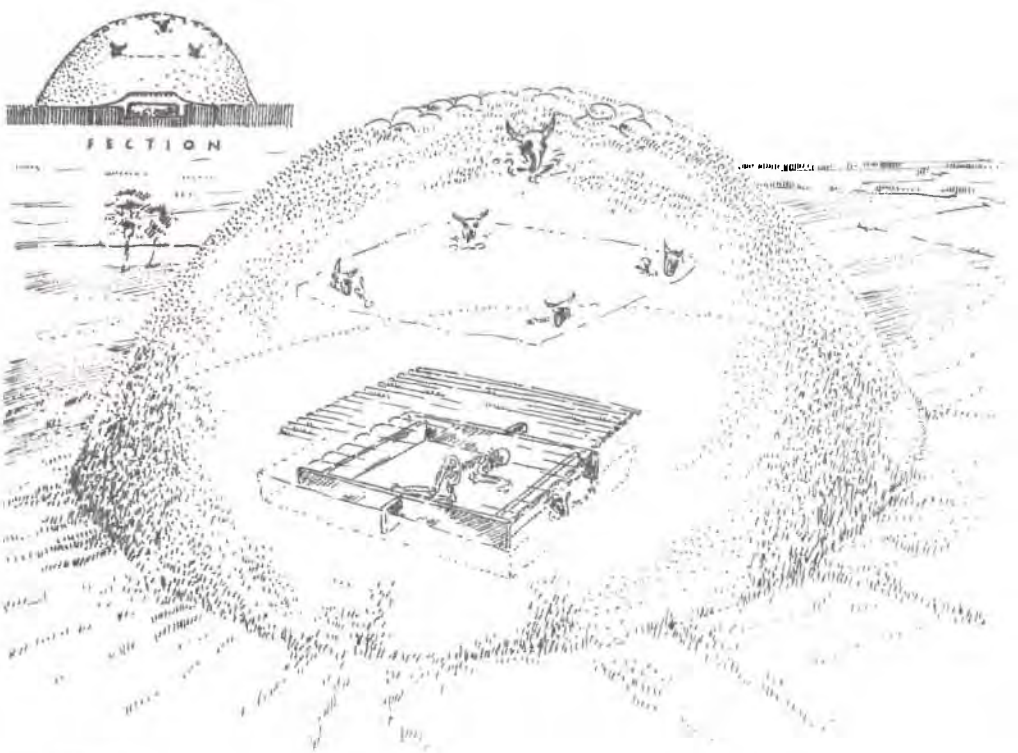


FIG. 359. Section and plan of the barrow from the cemetery of Kamyshevakha near Artemovski (Bakhmut), lower Donets basin. Fireplaces with skulls and leg bones of sacrificed bulls or cows are at the side and above the human grave.
After Gorodtsov, 1907a.



FIG. 360. Plan of barrow No. 5 at Jagodnoe, district of Kujbyshev. In the middle a fireplace with the skeleton of a cow. Late classical phase.
After Merpert, 1954.

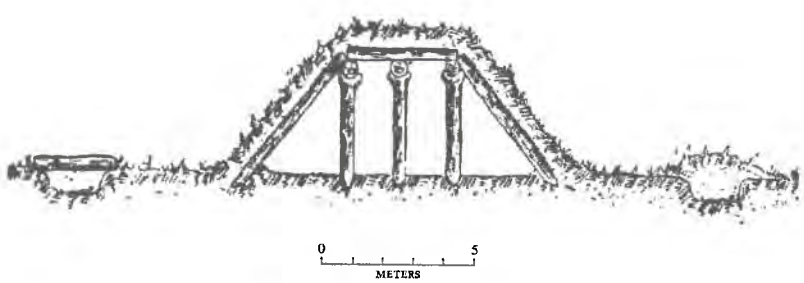


FIG. 361. A cross-section of a reconstructed timber house-grave from the cemetery of Kajbely, district of Kujbyshev, middle Volga area.
After Merpert, 1958.

Sheep or cows were probably skinned; the meat was consumed during the funerary feast and the bones laid in the skin. Cattle bones are the usual finds, placed not only beside the skeleton, but also in various spots in the barrow (figs. 358, 359), in hearths and in pots. Sometimes these caches contained only a skull or jaw, sometimes a considerable number of skulls and parts of legs. The custom of offerings of sheep in the Chalcolithic period in southern Russia changed during the Timber-grave period to offerings of cattle, although the occurrence of sheep legs and skulls indicates that in some places sheep were still sacrificed. In rare cases, pig bones were found. In one of the barrows of the cemetery of Kajbely, graves of a dog and a fox were discovered, buried in separate pits and lying on the insides like human beings (Merpert, 1958, p. 90).

During the classical Timber-grave period the horse appears as a prominent animal in religious cults and in military life. In graves and habitation sites bone bridle parts, most frequently elongated cheek-pieces and round ornamental plates, were found. I give here an illustration of round ornamental plates from the Ilovatka cemetery in the lower Volga area. These bone plates are decorated in the middle with a solar emblem and with minute geometric ornamentation around the edges (fig. 362, *1*). Bridle parts were laid

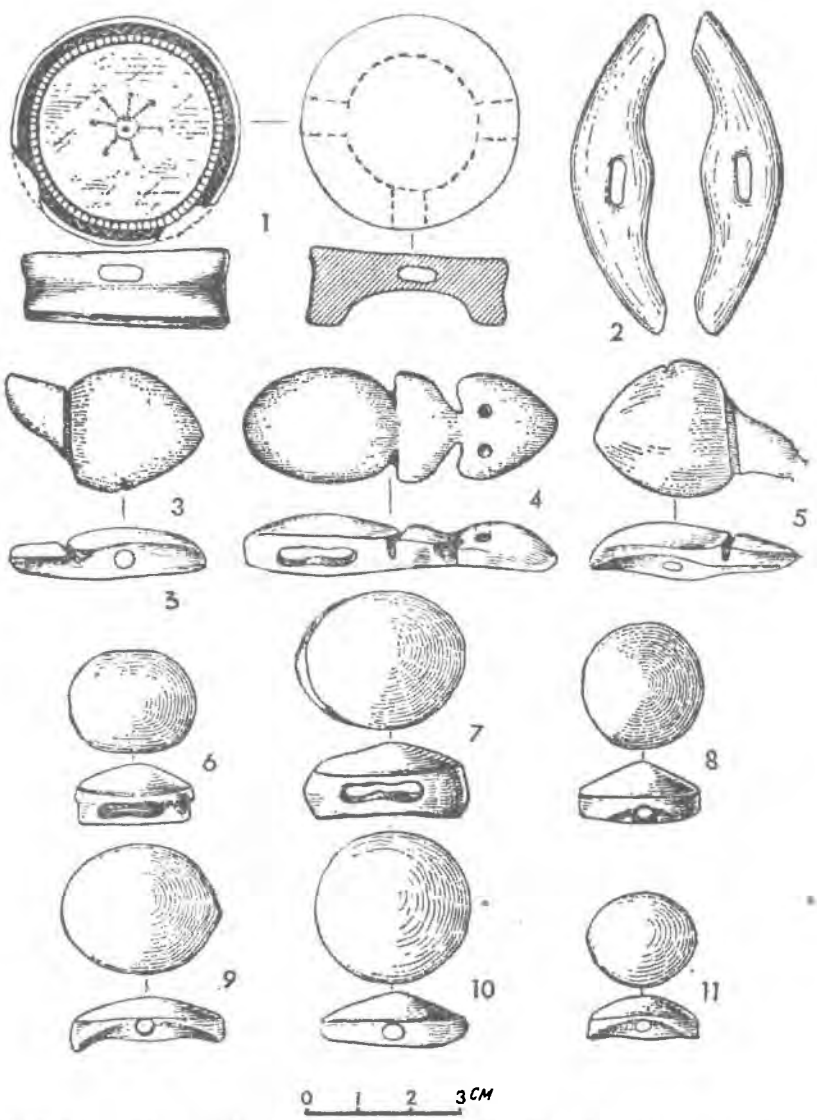


FIG. 362. Ornamental plates of bone used for horse's bridle. **1**, cemetery of Ilovatka near Stalingrad, classical Timber-grave period; **2**, cemetery of Jagodnoe near Kujbyshev, kurgan No. 4; **3-11**, cemetery of Zhirnokleevskoe, district of Stalingrad, kurgan No. 6. Late Timber-grave culture. *After* K. F. Smirnov, 1961.

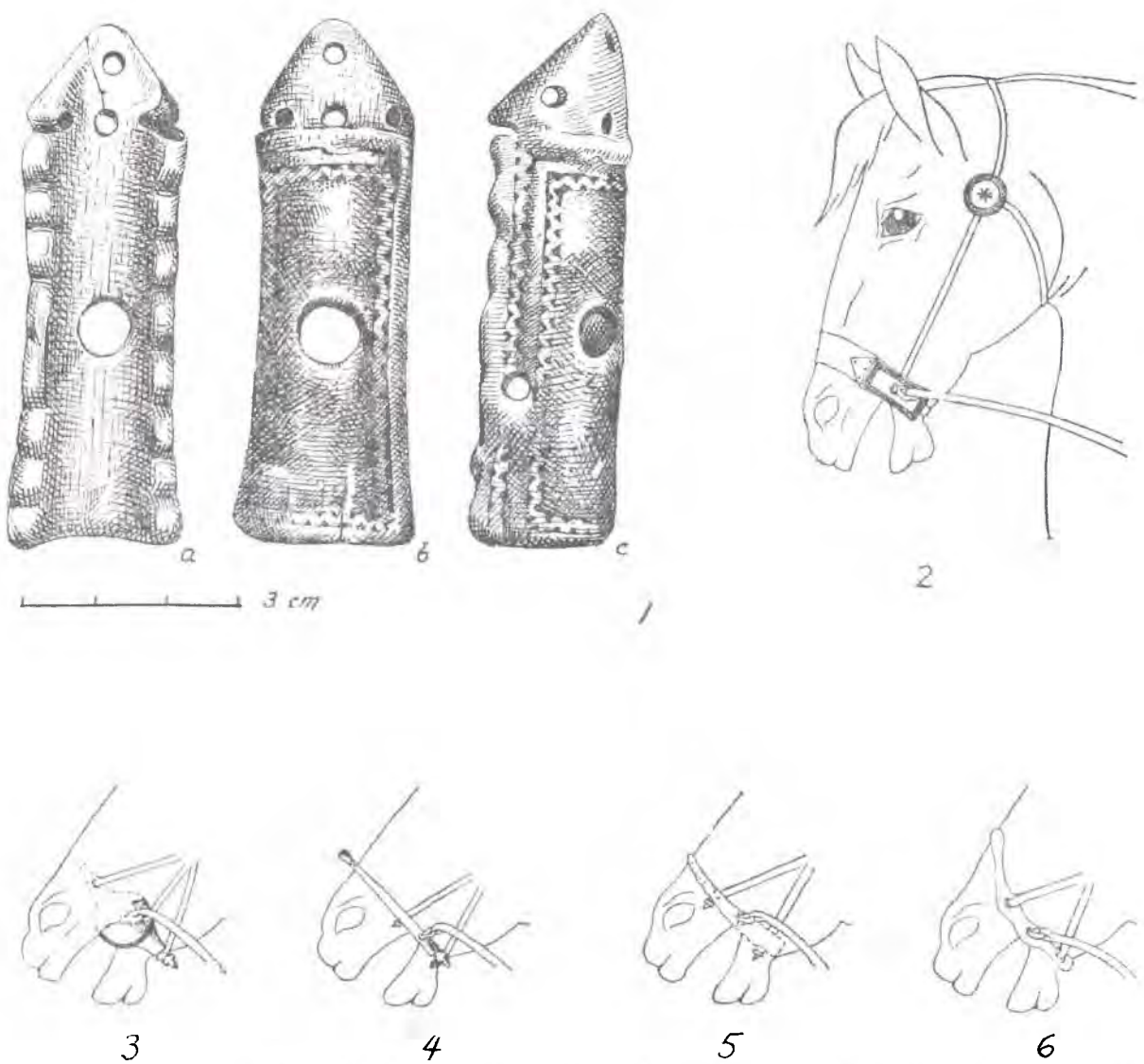


FIG. 363. **1,** cheekpiece of bridle made of bone, typical of the classical Timber-grave period. Three views. Komarovka cemetery, district of Kujbyshev. **2,** a reconstruction of classical Timber-grave bridle; **3,** an antler cheekpiece from the cemetery of Alakul, district of Kurgan, southwestern Siberia, Andronovo culture; **4, 5,** late Timber-grave cheekpiece from the habitation site at Postnikov ovrag near Kujbyshev; **6,** late Timber-grave cheekpiece from the cemetery of Zhirnokleevskoe, district of Stalingrad. *After* Alikhova, 1955 **(1)** and K. F. Smirnov, 1961 **(2-6)**.

in men's graves. Not merely cheekpieces and round plates appear; burials of bridled horses beside chieftains' graves have occurred. Fully preserved graves of horses were found in several instances: in both the kurgan No. 5 of Komarovka in the district of Kujbyshev (Alikhova, 1955), and in that of Bykovo near Stalingrad (Smirnov, 1957, p. 214) two horses had been buried in one grave, lying on the ancient surface on their sides with legs outstretched. Associated with the horse burials at Komarovka were cheekpieces – the only survivals of the harnesses (fig. 363, *1, 2*) – and at Bykovo, an arrowhead.

The cheekpieces found in Komarovka are the usual types for the late Classical period and recur in several cemeteries and habitation sites. All of them were made of a rectangular bone plate, semicircular in cross-section. In the middle there was a hole through which to thread the bridle, and in the projecting triangular or rectangular upper part there were from two to five holes to fasten the cheekpiece to the leather belt of the bridle. The edges of the under part were notched so that the horse would feel the slightest pull on the bridle. On the basis of Komarovka and Ilovatka bridle parts, K. F. Smirnov (1961

made a reconstruction of the bridled horse of the Timber-grave culture during the third quarter of the second millennium B.C. (fig. 363, *2*). The late Timber-grave people made cheekpieces of antler of various shapes: either narrow and elongated or with a circular broadening in the middle (fig. 363, *3-6*). Their shapes generally resemble the central European cheekpieces from the classical Otomani and late Únětice periods in Hungary and Slovakia. Ornamental plates of the late Timber-grave culture also differed from the earlier ones. Twenty-three ornamental plates of a round or profiled (anthropomorphic?) shape (fig. 362, *3-11*) were found with the cheekpiece (fig. 363, *6*) in the Zhirnokleevskoe kurgan in the district of Stalingrad. In one of the secondary burials in the Jagodnoe cemetery (kurgan No. 4) two copper or bronze elongated plates with a hole in the middle (fig. 362, *2*), too short to be cheekpieces, appeared; they probably served for ornamental purposes.

The horses were buried with as much care as humans. Above one horse of the Komarovka barrow lay skulls of a cow, a calf, and a sheep, beside the earliest and centermost grave of the barrow, which must have belonged to an important person, probably a chieftain of the tribe. The barrow of Komarovka is unique in its construction: the barrow was covered with logs all around the sides (fig. 364), and above it there was another earthen barrow. Within the first barrow horse teeth were scattered around. The timber construction of the man's grave was badly preserved and the grave was destroyed by rodents, but judging from the copper dagger found in this grave, it can be presumed that the grave belonged to the classical period. The barrow of Bykovo is very interesting. The main grave contained no skeleton, but in it were found an elliptical macehead of fine workmanship made of serpentine, a decorated bone ring, and a pot with remains of an offering, presumed to be blood (*see below*, fig. 379). This timber-grave with remains of timber balks from a saddleback roof and a vertical post may have been built for a chieftain who was killed outside his tribe's territory. Next to this cenotaph was a woman's grave (chieftain's wife?) equipped with a knife, typical of the late classical or Pokrovsk phase, and a greenish annular faïence bead.

Symbolic burials (cenotaphs) are quite frequent in the Timber-grave culture; several such peculiar graves were found in the large one-barrow cemeteries in the district of Kujbyshev. In one of the barrows of the cemetery of Kajbely (No. 11), the cenotaph, a well-built timber house without any traces of burial, stood in the middle of the barrow. Other graves encircled it (Merpert, 1958, p. 91, fig. 5).

Human sacrifice was practised, and is attested to in several cemeteries in different areas: Nikolaevka near Izjum (Gorodtsov, 1905a; Tallgren, 1926, p. 66); Pokrovsk near Saratov, kurgan No. 7 (Rykov, 1927, pp. 73-74); and Khrjashchevka and Jagodnoe near Kujbyshev (Merpert, 1954, p. 144). An adolescent's bones, the skull, ribs, shoulder bones, and sections of the forearm, were found in the central hearth of kurgan No. 6 of the Khrjashchevka cemetery. In the hearth of kurgan No. 8, a human skull was discovered (Merpert, 1954, p. 144).

In classical period graves the dead lay contracted on the left side with their heads oriented to the north or northeast; but in the double graves the skeletons lay in opposite directions or facing each other. In multiple graves, a fairly large number of burials consisted of a man and a woman, a child and an adult, or several children. The burial of a man and woman together is typical of southern Russia throughout the Chalcolithic and the Bronze Age. Some collective graves held up to five human skeletons and many bones of animals. One of these exceptional graves was found in Khrjashchevka, in kurgan No. 4, where human and animal bones were placed, not in anatomical order, in a big pit covered with timber. With the bones of adults were those of children. In the middle of the grave were two skulls belonging to young men. Along with the human and animal bones, there were sherds of four genuinely late classical Timber-grave pots (Merpert, 1954, pp. 92-93, fig. 22).

The typical burial rite was inhumation. However, cremation is in evidence in many instances and was used by the same people at the same time as inhumation. Cremation graves were found in the lower Volga area, mostly east of the Volga. In a well-preserved funerary timber house in a kurgan at Makarovka (kurgan No. D1, grave 1), cremated human bones were scattered over the bottom of the grave.

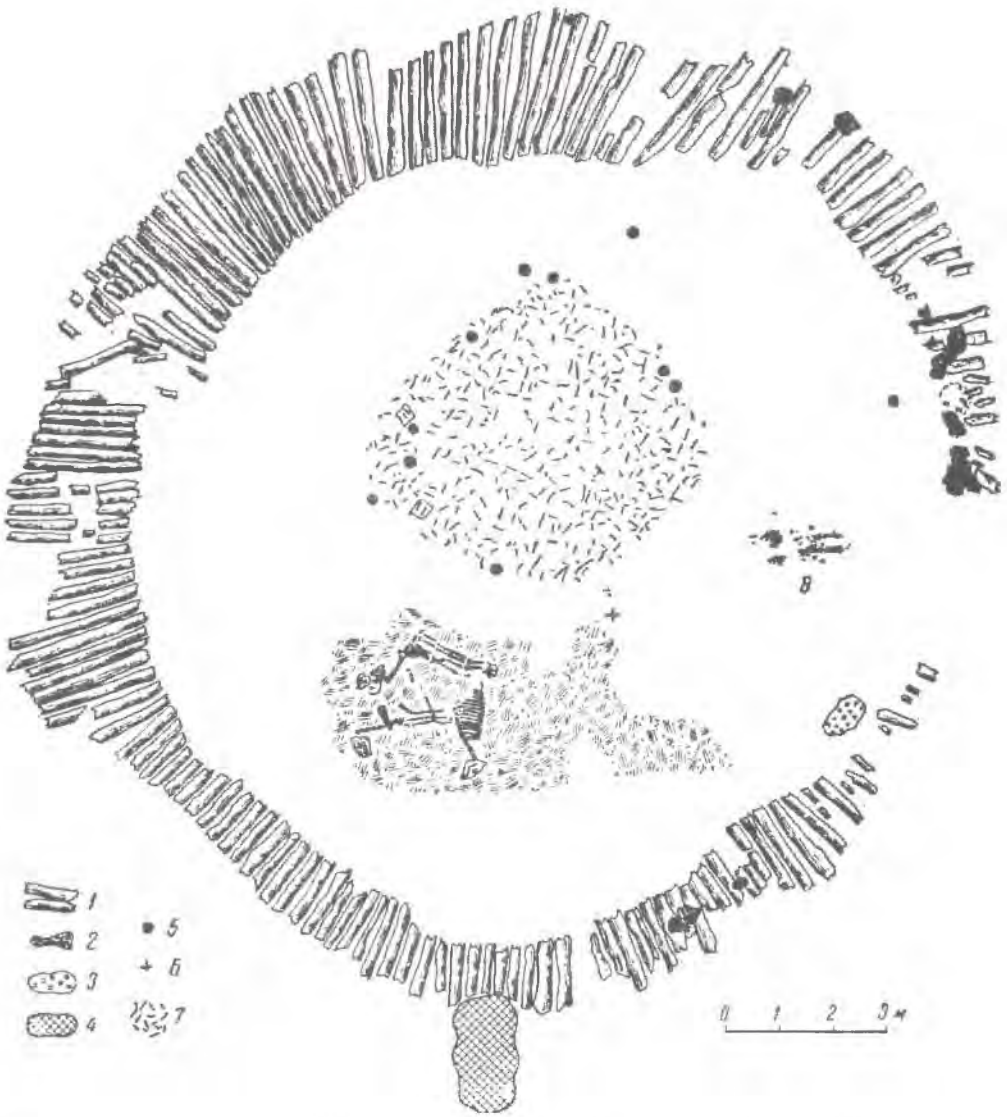


FIG. 364. Plan of the barrow covered with logs from the cemetery of Komarovka, district of Kujbyshev. In the middle, remains of a timber-grave and grave of two horses. **1,** remains of logs; **2,** burnt logs or charcoal; **3,** burnt earth; **4,** cross-ditch; **5,** human bones; **6,** location of copper dagger; **7,** remains of timber; **8,** subsidiary grave of a Savromathian. *After* Alikhova, 1955.

In the grave stood a Timber-grave vessel, neckless and with slightly convex sides, decorated with vertical stampings (Sinitsyn, 1947, p. 70, fig. 43). In another barrow (kurgan No. B2, grave 5) of the same cemetery, cremated human bones were on the bottom of a narrow timber construction, only 88 cm in width. The bones were associated with the ribs of a horse placed at the side of the grave, a copper dagger or knife, and a Timber-grave pot (Sinitsyn, 1947a, q. 80, fig. 54; excavations by Rau, 1929). A fairly large number of cremation graves are reported from the area between the lower Volga and the southern Urals (the kurgan cemeteries at Pogromnyj in the district of Chkalov: Derkul in the district of Ural; Domashka near Buzuluk: Salnikov, 1950). Here also they appear alongside inhumation graves; judging from the grave goods, both kinds of burial rite were practised in the same period. In one of the graves of Pogromnyj (kurgan No. 4), cremated human bones were found together with three ribs of a horse. The same kurgan contained six inhumation graves, in which only cattle and sheep bones appeared. From this it can be deduced that cremation graves may have had a special significance and were connected with horse sacrifice.

During the Catacomb-grave phase in the Donets area, the cremation rite was practised along with inhumation. In Anatolia also, during the period of the Early Hittite Empire, cremation and inhumation graves occur side by side.

Dismemberment of the dead is evidenced by numerous cases in the Khrjashchevka and Jagodnoe cemeteries found during the excavations of 1950-1952 (Merpert, 1954, pp. 142 ff.). Burial of the dismembered body parts or of a skull or skull with extremities occurred in the subsidiary graves of a kurgan, never in the central grave. Excavators have noted two kinds of dismemberment. Natural dismemberment, as some bones show, could have happened if the dead body were kept unburied for a long time until the joints loosened. In other cases, deliberate dismemberment was shown by cuts on the bones made by a narrow metal implement. Such cuts were noticed on the skeletons that lacked skulls or legs or arms; these dismembered bodies may belong to people who died unnatural deaths or were sacrificed. Close to this kind of grave were hearths with animal bones. The dismemberment of the dead is not a specifically Timber-grave custom; it was a continuation of Pit-grave customs in southern Russia, and occurs in almost all prehistoric periods. Cases of dismemberment are particularly frequent in the Early Bronze Age Únětice, Baltic and North Carpathian cultures, as we already know.

The large, well-excavated kurgans of Khrjashchevka and Jagodnoe near Kujbyshev have yielded much information on large-scale funerary rites. In several kurgans, in the middle above the ancient surface were traces of huge hearths with bones of sacrificed animals and humans, and whole skeletons of cattle on top. The chief hearth was circled by graves arranged in one or two concentric circles. There was undoubtedly an elaborate system of burial connected with the deceased's social status, age, sex, or other considerations. As an example, a brief description of kurgan No. 5 of the Jagodnoe cemetery is given below.

This kurgan was 2 m high and 30 m across, and contained 20 graves and a large hearth in the middle (fig. 360). From the grave goods, consisting chiefly of pottery, it appears that the burials were all of the same period. The hearth was 4 m long and 70 cm thick; on it lay the skeleton of a cow (bull?). This was probably a ceremonial place around which were buried members of one clan. The graves were arranged to circle the hearth in two rows. Those in the inner part of the kurgan belonged to women and children, who were buried in shallow pits dug into the ancient surface or above it; some were in the barrow. Graves in the outer ring were in deeper pits and all belonged to men. Well-preserved massive logs used for covering the timber-graves were found. Some graves were large and markedly rich in grave equipment, with individual hearths. One such was No. 8 in the southern part of the kurgan. The roof of this grave was made of two horizontal rows of boards and the pit was deeper than in other graves. The skeleton of a man, at least 1.90 m tall, lay on its left side with the head pointed to the north, as in almost all the graves in the kurgan. The equipment differed in size; even the pots were bigger. Two copper or bronze knives lay across one another below the potsherds close to the skull, one in its wooden sheath. According to Merpert, this grave probably belonged to the head of the family and was the first to be placed in the kurgan (Merpert, 1954, pp. 60-61, 69 ff.). Around this important grave and sacrificial place the other family graves accumulated. At first there was no barrow, and only gradually did the barrow reach the size at which it was discovered.

At the side of an important man there were frequently found skeletons of children or of a woman. One such distinctive grave was discovered in kurgan No. 11 of Skatovka near Stalingrad (Sinitsyn, 1956, 1959). The grave was bigger than usual, its length being 4.5 m, width 3 m, and depth 2 m (fig. 365). The ceiling was formed of 16 boards, 4 m in length and 40 cm thick. West of the grave lay the skulls and leg bones of two cows and three sheep and a pot filled with the leg bones of sheep (fig. 365, *bottom*). At the bottom of the grave, the skeleton of an adult man lay in a slightly contracted position on the left side with his face turned toward the ground and head pointed toward the northeast. Behind the skull was a round piece of gray clay and a copper knife or dagger (fig. 366, *4*). A skin quiver with 13 nicely retouched flint arrowheads in leaf form with flat bases (fig. 366, *5-17*) lay in front of the skeleton. Next



FIG. 365. Plan of the grave belonging to an important person buried together with two small children, skin quiver filled with flint arrowheads (in front of the skeleton), wooden bow and vessels (not preserved), pots, a copper knife, and other copper artifacts, skulls, and leg bones of offered cows and sheep (bottom). Central grave of kurgan No. 11, the cemetery of Skatovka in the district of Saratov. *After* Sinitsyn, 1959.

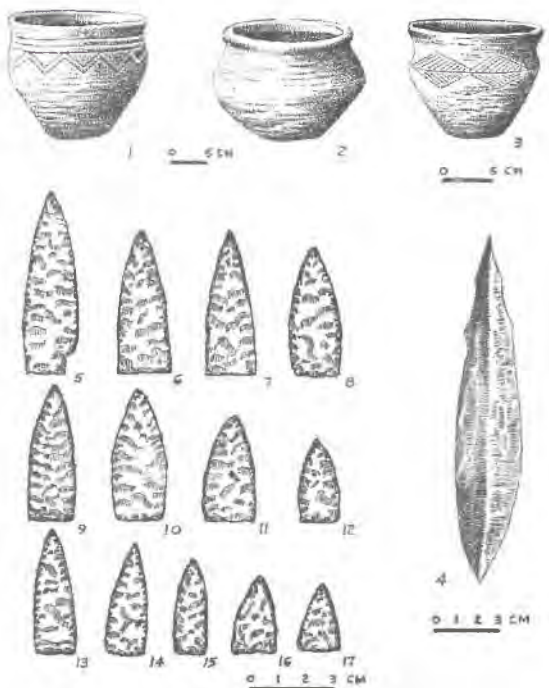


FIG. 366. **1-3**, pots; **4**, dagger or knife; and **5-17**, flint arrowheads from the grave of a distinguished man. Skatovka

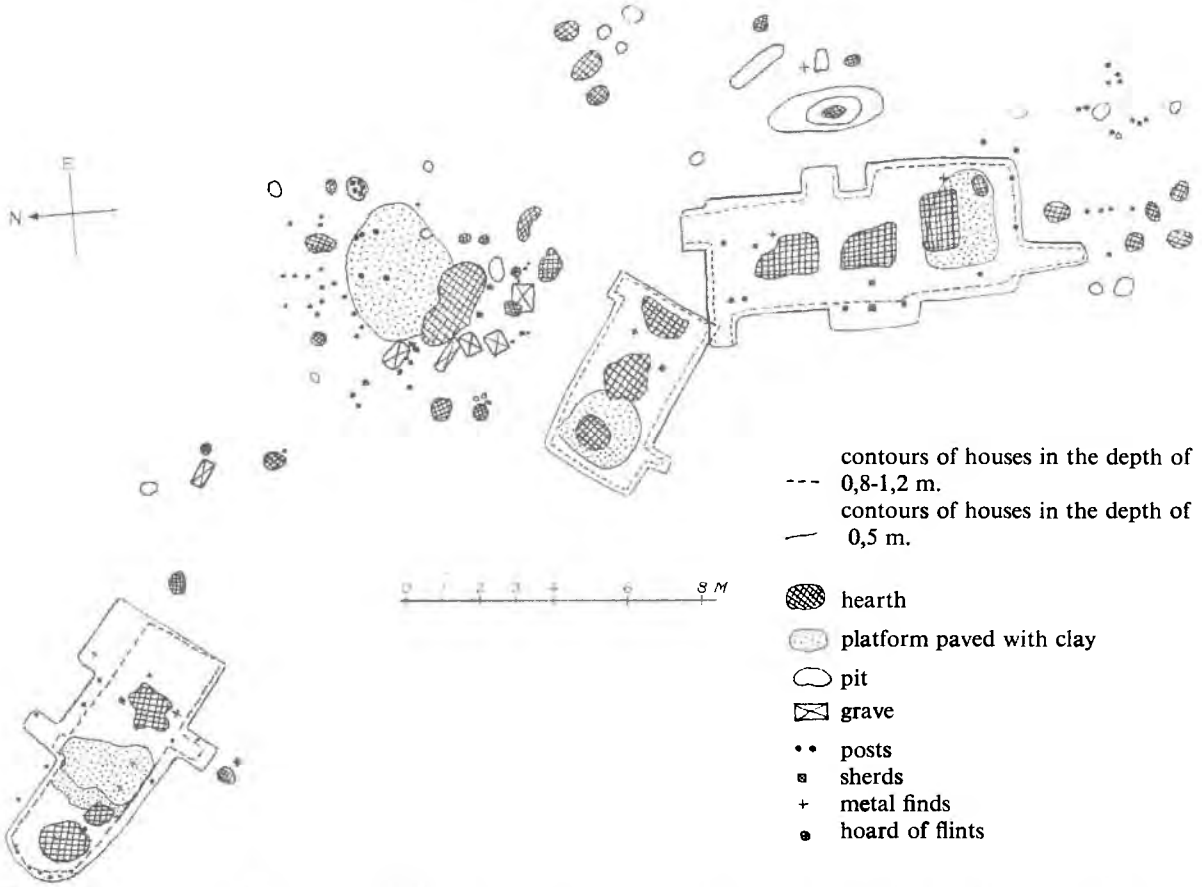


FIG. 367. Plan of a sacrificial place and of three houses in the village of Balyma, district of Kujbyshev. Late Timber-grave period. *After* Khalikov, 1953.

to the quiver were the remains of a wooden bow and two copper bars, quadrangular in cross-section and with blunted ends. In the same place lay other skin objects and wooden vessels, but these were not sufficiently preserved for recognition. There, too, stood three nicely formed, smoothed pots, two of them ornamented with incised horizontal and zigzag lines (fig. 366, *1-3*). With the man, two children, one about three years of age, the other about five, had been buried. One child lay in the southwestern corner of the grave, the other outside the grave behind the man's head (fig. 365). The Skatovka burial is an eloquent witness to man's position in the patriarchal Timber-grave society and his grave equipment is proto-typical of the Early Iron Age Scythian.

Sacrificial places are found in habitation sites. One such place was discovered in the village of Balyma near Otary on the middle Volga. In the central and most elevated part of this village was a hearth and a platform paved with clay and sand about 8 m across (fig. 367, *center, left*). There were also remains of many posts, a hoard of long flint blades and a scraper, whole pots buried in the earth, and around the hearth, sherds. On the southwest, the hearth was encircled by five graves.

D. CHRONOLOGICAL CLASSIFICATION

Barrows containing graves of different chronological phases definitely indicate that the Timber-grave period was a long-lasting one. In order to understand its chronological development one has to first survey the stratigraphic evidence in conjunction with the evidence of its relations with cultures whose

chronological position is known, evidence which is provided by the widespread trade relations of that era. Most of the kurgan cemeteries that yield evidence for stratigraphic comparison are from the lower Volga area around Stalingrad, Saratov, and Kujbyshev, where there are now hundreds of cases where stratigraphy has been observed in tumuli.

The classical Timber-grave culture, which belongs to the middle and the larger part of the second half of the second millennium B.C. is the best documented phase. It is characterized by burial in timber house-graves and by biconical geometrically ornamented pottery. With insignificant changes in pottery forms and decorations and some alterations in burial rites, the classical Timber-grave culture lasted for about 700 years and can be subdivided into several subphases. The early Timber-grave culture, which represents a transitional phase between the Volga Pit-grave and the Timber-grave periods, is called the "Poltavka culture". There was also a late Timber-grave culture of the end of the second and the beginning of the first millennium B.C. during which considerable changes occurred: timber constructions were not built in cemeteries any longer, there were no individual barrows, habitation sites were arranged on the highest river terraces and were usually fortified, and elaborate weapons appeared. The warlike character of the culture reached its apogee.

Timber-grave finds so far lead to classification into three main periods: 1. Early Timber-grave culture or Poltavka period; 2. Classical Timber-grave culture; 3. Late Timber-grave culture.

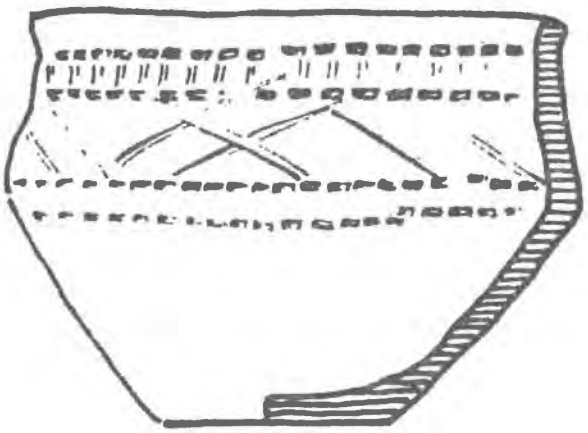
1. *The Early Timber-grave Culture or Poltavka Period, ca. 2000 – ca. 1800 B.C.*

The name Poltavka has been used since 1928 as a label for the graves succeeding the Neolithic-Chalcolithic pit-graves and hut-graves in the lower Volga area. It was first used by Rau after he excavated the cemetery at Staraja Poltavka on the Eruslan River near Saratov (Rau, 1928a and b, p. 16).

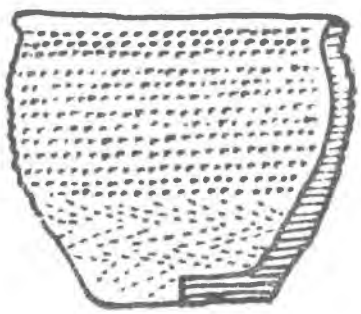
Grave types were almost the same as during the Chalcolithic period. Barrows were semispherical and quite high, some even 3 m., usually in compact groups, but sometimes standing in a single line. The biggest changes were the appearance of local metallurgy, an increase in metal, and the appearanceof flat-bottomed pottery. These phenomena are the main criteria by which the Poltavka period of the Bronze Age is identified.

In the kurgan of Borodaevka (Boaro) near Marx in the area of Saratov, examples of the early Timber-grave phase were found in a stratigraphic position: the "Poltavka" grave lay immediately above a chalcolithic hut-grave which was the earliest in the barrow. The hut-grave contained a short double-edged copper knife or dagger, and a copper awl quadrangular in cross-section (Sinitsyn, 1947a). This stratigraphy strikingly illustrates the continuity of culture for the Chalcolithic hut-grave and the Poltavka grave were of about the same shape, both basically "hut-graves". Generally, in the graves of the Poltavka phase, traces of rotten wood are found within the pit and traces of birch bark on the bottom of the grave. They very probably are remains of some hutlike construction. However, they were not yet real "timber-graves" built of well-prepared planks and logs as in the classical Timber-graves.

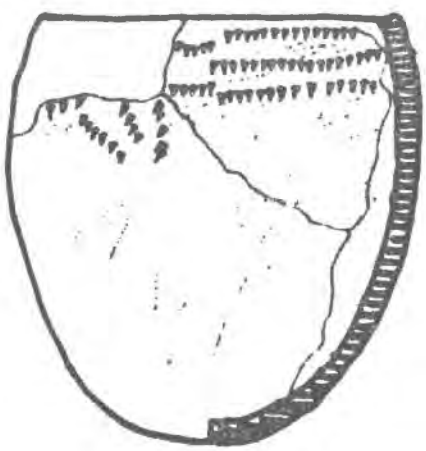
In Kalinovka near Dubovka, 11 km north of Stalingrad on a high terrace of the Volga River, 65 barrows were preserved, of which 16 were excavated in 1952 (Shilov, 1955, 1959), and found to contain 135 graves of different periods ranging from the Neolithic to the Middle Ages. In two (Nos. 8 and 10), Neolithic pit-graves appeared, in each case in the center of the mound and dug into the ancient soil. They were rectangular in plan with rounded corners. The skeletons lay on their backs with legs contracted upwards. Near them lay two round-bottomed pots, one decorated with stampings of a narrow triangular chisel-like implement (fig. 368, *I*), the other with cord impressions. Red ochre was found in both of them. A later phase in the same barrows was represented by several burials, each containing a bulging vessel decorated with broken horizontal lines stamped in with a narrow chisel, and with herringbone motifs (fig. 368, *II*), and in addition a copper dagger of the usual Catacomb-grave type



III



II



I

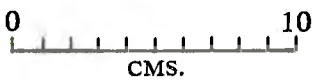


FIG. 368. Pots from different phases from the barrows of Kalinovka, north of Stalingrad. I, Pit-grave period (Kurgan I); II, Poltavka phase (Early Timber-grave culture); III, Classical Timber-grave period.

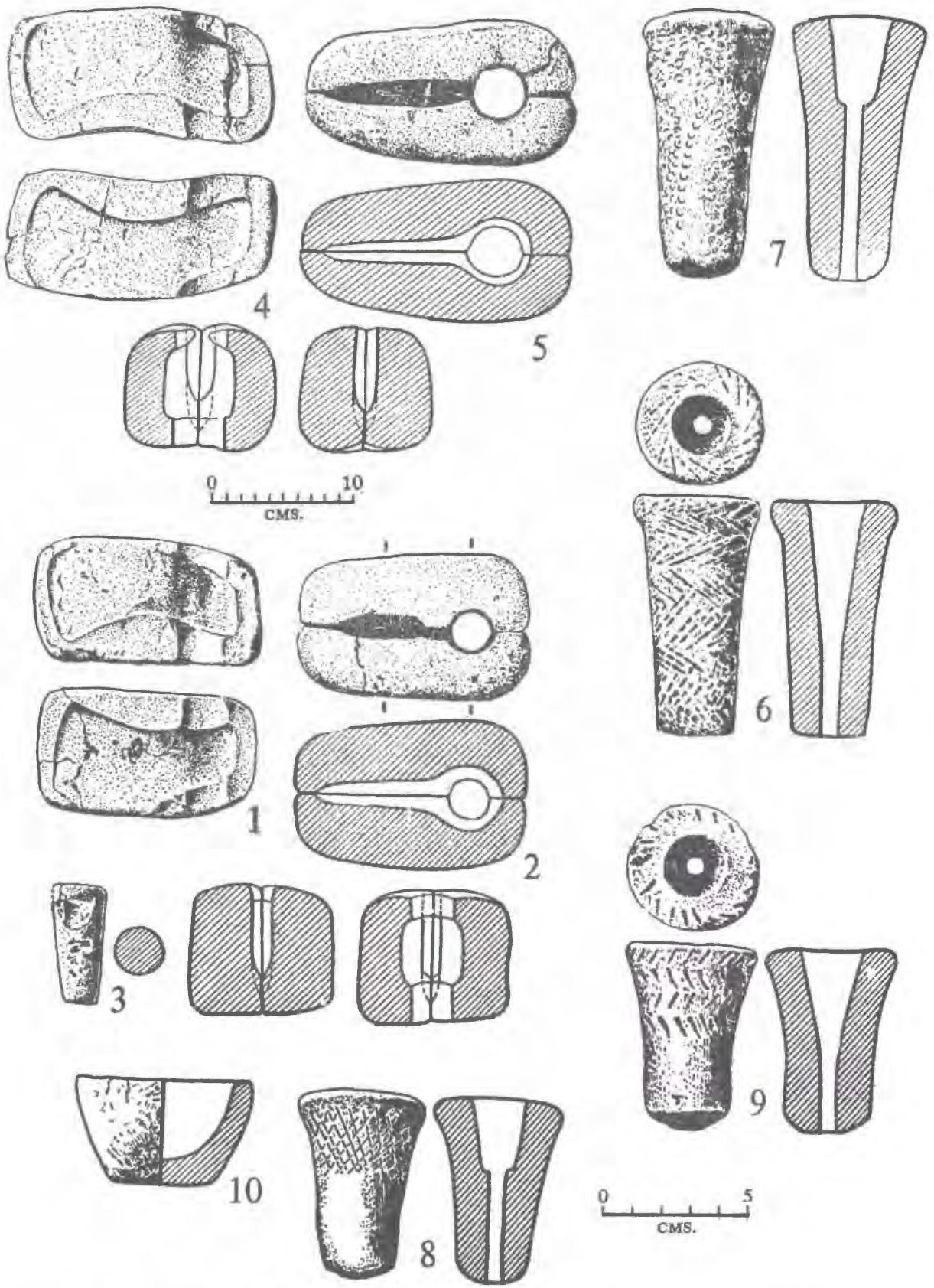


FIG. 369 *A*. Inventory of a bronze founder's grave. **1, 2, 4, 5,** clay molds for shaft-hole axes; **3,** clay plug; **6-9,** pottery nozzles; **10,** crucible. Kalinovka, barrow No. 8, north of Stalingrad (Volgograd). *After* Shilov, 1959.

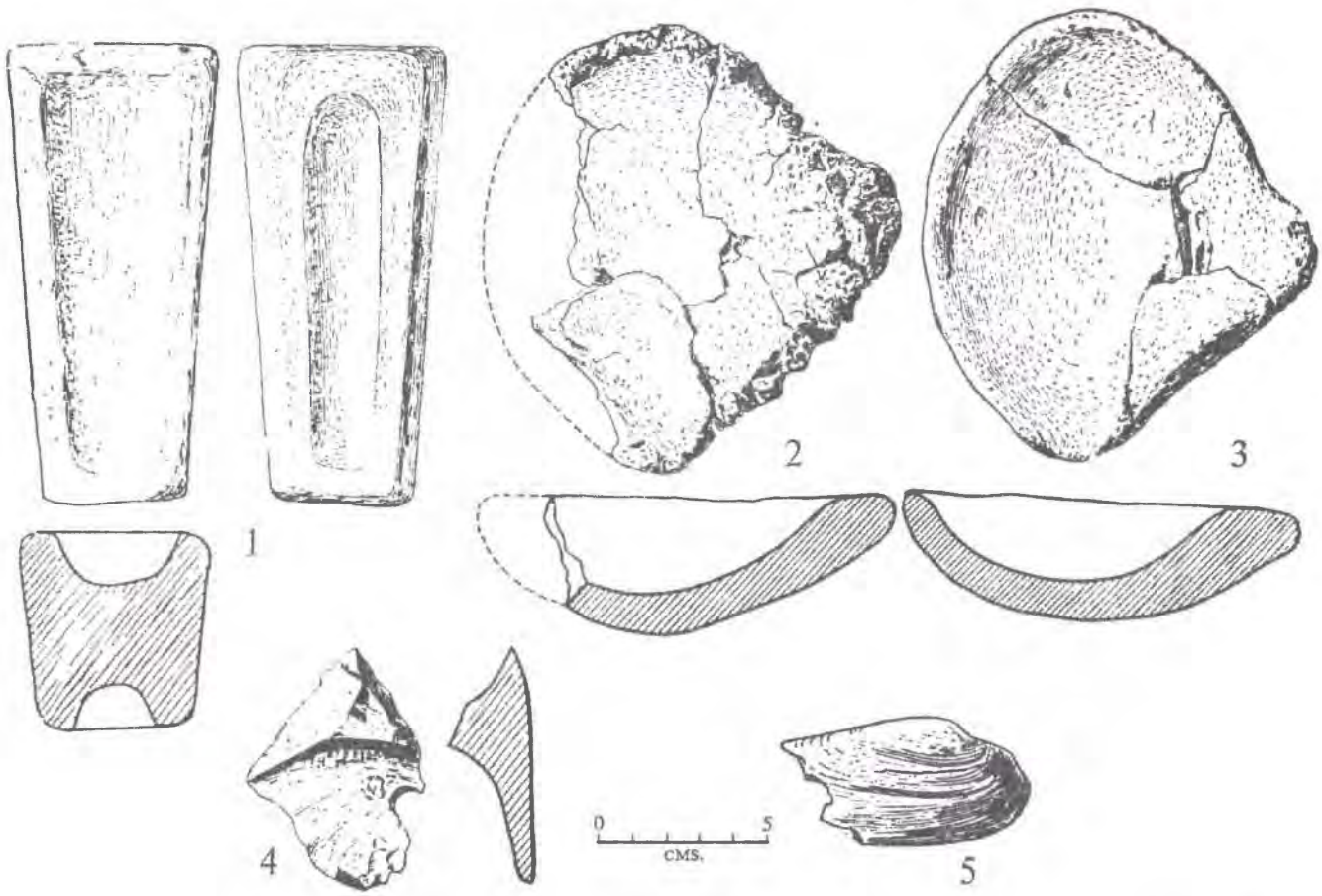


FIG. 369 *B*. Inventory of a bronze founder's grave (together with fig. 369 *A*). **1**, mold for chisels; **2, 3**, crucibles; **4**, flint flake; **5**, *Unio* shell. *After* Shilov, 1959.

These burials are typical of the Poltavka period. The graves lay in rectangular pits, the skeletons usually in the contracted position. In the double grave of kurgan No. 10, a woman lay extended on her back with her head pointed to the east. A child about one year of age lay at her side.

In kurgan No. 8 there was a grave containing implements for metallurgy and agriculture, including clay molds for shaft-hole axes and chisels, clay crucibles, nozzles decorated with a herringbone motif or semicircles, a stone pestle, a flint flake, a heap of *Unio pictorum* shells (figs. 369 A and B), and calcinated bones. Beside this grave, another rectangular grave or cenotaph (No. 32) with rounded corners was found. In it lay a bulging vessel ornamented with an incised herringbone motif, a whetstone, the remains of a copper awl quadrangular in cross-section, and bones of geese and swans covered with red pigment. There were no traces of human bones. The grave was covered with a 5-6 cm thick layer of red ochre.

In another barrow (kurgan No. 55) the second metallurgist's grave was uncovered. It contained two clay nozzles (fig. 370, *1*, *2*), a small clay mold (fig. 370, *4*), a copper awl rectangular in cross-section (fig. 370, *5*), and a small bulging vessel with horizontal cord impressions and a zigzag motif around the mouth (fig. 370, *6*). The pot is undoubtedly of Poltavka type, as was the grave form, a large rectangular pit with rounded corners. The skeleton lay on its back with severely contracted legs and arms and with the head oriented toward the east. Ochre was found below the skull and feet; the skull was deformed.

These two Kalinovka graves with molds, nozzles, and crucibles stratigraphically and typologically belong to the Poltavka phase. This is the best and earliest evidence for local metallurgy in the Volga area.

Successive graves in the barrows of Kalinovka were of classical Timber-grave type (such were found

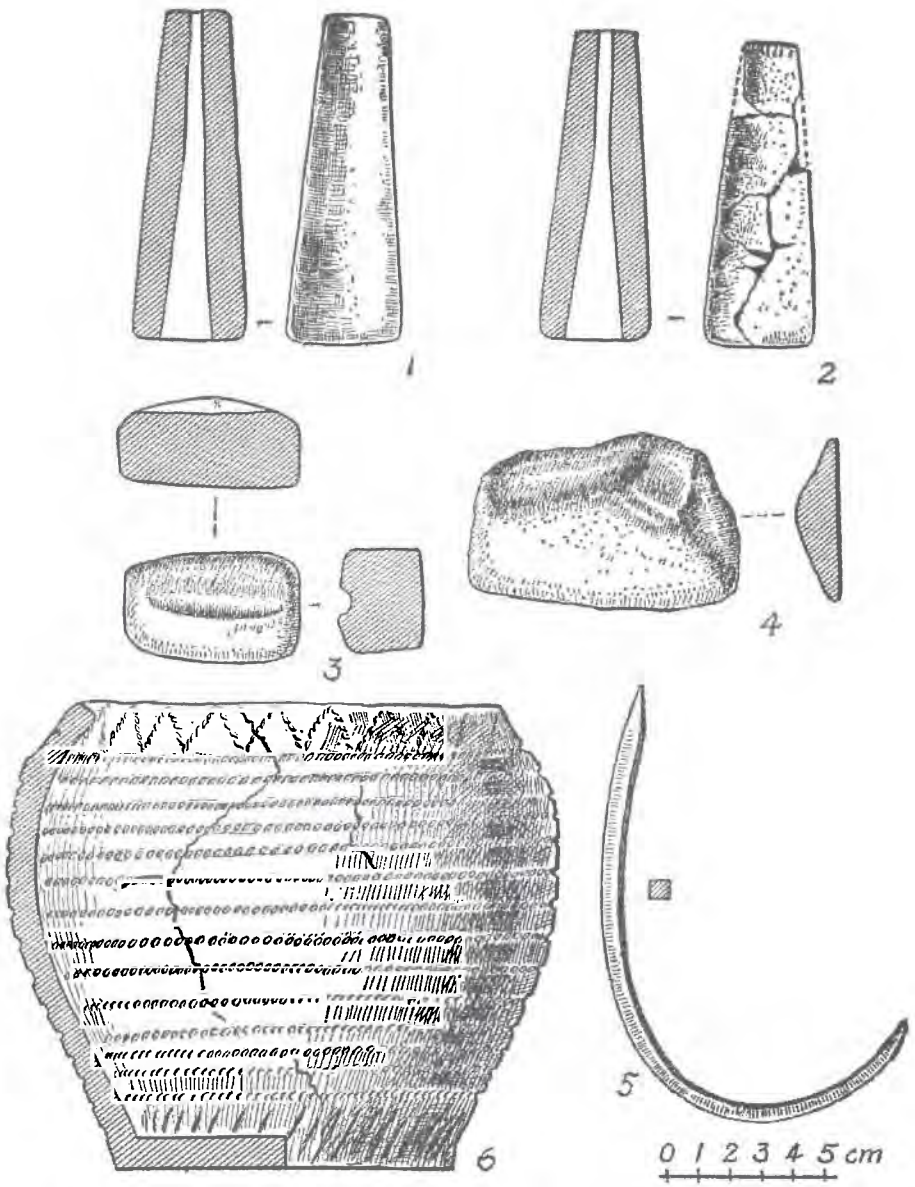


FIG. 370. Inventory from a bronze founder's grave (barrow No. 55, grave No. 13), Kalinovka cemetery north of Stalingrad (Volgograd). **1, 2,** clay nozzles; **3,** mold; **4,** grindstone; **5,** copper awl; **6,** pot. *After* Shilov, 1959.

in kurgans Nos. 6 and 12). Pots were larger, more or less biconical, and their ornamentation was confined to the upper part (fig. 368, III). They differed from the Poltavka pots which usually were small and were decorated solidly either with horizontal or diagonal rows, with incisions by a sharp instrument, or with cord impressions.

The Poltavka phase in the Stalingrad and Saratov area was contemporary with the Catacomb-grave phase, which can be dated at the beginning of the second millennium B.C., *ca.* 2000-1800 B.C. Burials in catacomb-graves occur sporadically even around Saratov, e.g., in the Staraja Poltavka and Berezhnovka kurgans, but these catacomb-graves have an individual shape, different from the catacomb-graves near the Sea of Azov. They had a wider entrance and were usually quadrangular in plan. Pottery from these southern Russian catacomb-graves was of the Poltavka type. Catacomb-graves occur along with the regular rectangular or oval graves which had traces of posts for supporting a timber roof. Skull defor-

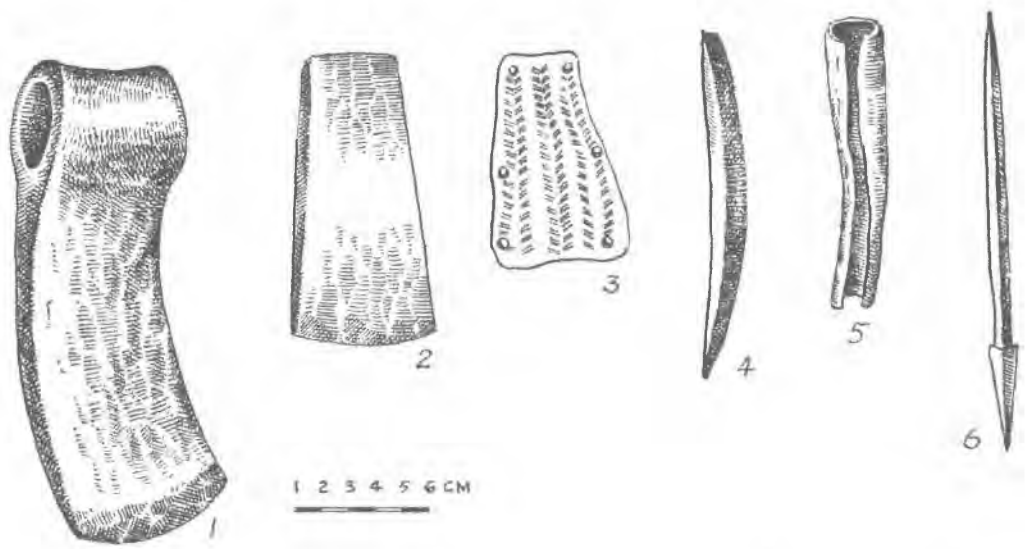


FIG. 371. Copper artifacts from a grave or hoard found at Koltubanka near Buzuluk, southern Urals. **1,** shaft-hole axe; **2,** celt; **3,** ornamental plate; **4, 6,** awls; **5,** gouge. *After* Golmsten, 1928.

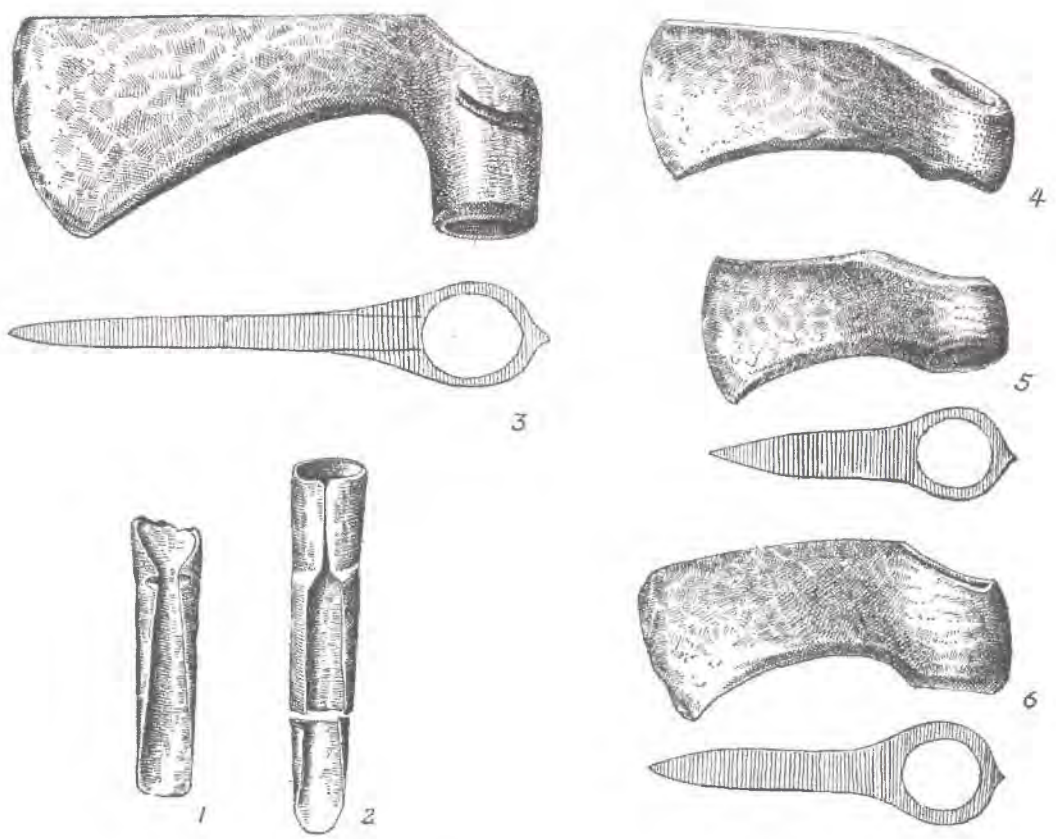


FIG. 372. Skakun hoard, near Kursk, southern Russia. **1, 2,** chisels; **3-6,** axes. Scale approx. 1/4. *After* Krivtsova-Grakova, 1955.

mation, a feature common to both grave types, was reported from the Berezhnovka cemetery (Sinitsyn, 1954); even women's skulls were deformed. A rectangular grave (Berezhnovka kurgan No. 32, grave 5) contained a female skeleton lying on its back with knees contracted upward and with a deformed skull. The grave held a stone pestle found to the left of the skull, a pot at the left shoulder, spiral copper earrings, and a necklace of cylindrical and segmented copper beads with three pendants of white stone (fig. 355).

Locally produced metal artifacts do not show a great variety of forms, but are confined to axes, awls, chisels, spirals, and beads. Some copper artifacts indicate that contacts with the Caucasian metallurgical center must have continued. For instance, one grave or hoard on the banks of the Samara River at Koltubanka near Buzuluk (Golmsten, 1928) included a shaft-hole axe (fig. 371, *1*), a celt (fig. 371, *2*), a folded, U-shaped gouge (fig. 371, *5*), awls (fig. 371, *4*, *6*), and an ornamented plate (fig. 371, *3*). The axe and the gouge have analogies to artifacts in the Privol'noe hoard in the valley of the Kuban River in the northern Caucasus (fig. 329). The Privol'noe hoard, as has been mentioned, belongs to the Middle Kuban stage of northern Caucasian metallurgy. As the Kalinovka molds show, the Koltubanka finds could have been local imitations of Caucasian examples.

Another hoard that may be typologically placed in the early Timber-grave period, probably the latter part, was found in Skakun near Kursk. It contained four shaft-hole axes (fig. 372, *3-6*) and two chisels (fig. 372, *1*, *2*). The axe types (fig. 372, *4-6*) are generally the same as those of Kalinovka molds, and the larger axe (fig. 372, *1*) is reminiscent of Caucasian forms.

The Koltubanka and Skakun metal types are about the last witnesses of Caucasian influences on southern Russia, since during the classical period Timber-grave metallurgy was completely oriented toward the Urals and western Siberia.

2. *The Classical Timber-grave culture, ca. 1800 B.C. – ca. 1100 B.C.*

Habitation sites of this period were generally small villages, usually arranged on a narrow river terrace made up of small, semisubterranean rectangular or quadrangular houses with one or several posts in the middle. In the burial sites, barrows were circular. The lowest grave was set in the ground and covered with an individual barrow. The grave type was an imitation of the main house type found in the villages of this period. In the beginning, graves were roofed with timber supported by vertical posts, but toward the end of the classical period, they were built entirely of beams and planks. The dead lay on their sides, most often with the head pointed toward the north. Red ochre gradually disappeared from graves. In ceramic art, pots attained a more articulated form, and geometric motifs became more complex and varied. The center of metallurgy in the southern Urals produced individualistic forms that spread widely over southern Russia, southwestern Siberia, and reached the Kama River in the north.

This long-lasting period can be subdivided into two phases, early and late.

a. *The Early Classical Period, ca. 1800 – ca. 1450 B.C.*

An indicator for the chronological position of this assemblage of finds is a simple bone ring with a perforation on one side. In the chapter on fixed points in chronology I mentioned its distribution between the Baltic and Black Seas, and the Volga River (fig. 5), and noted its importance for chronology. Such a bone pendant or amulet was brought to light in the cemetery near the village of Kievka, in the district of Zemljansk, where 12 barrows were excavated in 1912 and 1913 by amateurs. We have a description of finds and burial types from only one tumulus (Tallgren, 1926, p. 70). It was circular but flat and contained an early timber-grave, the pit of which was covered by a double timber roof. Below were

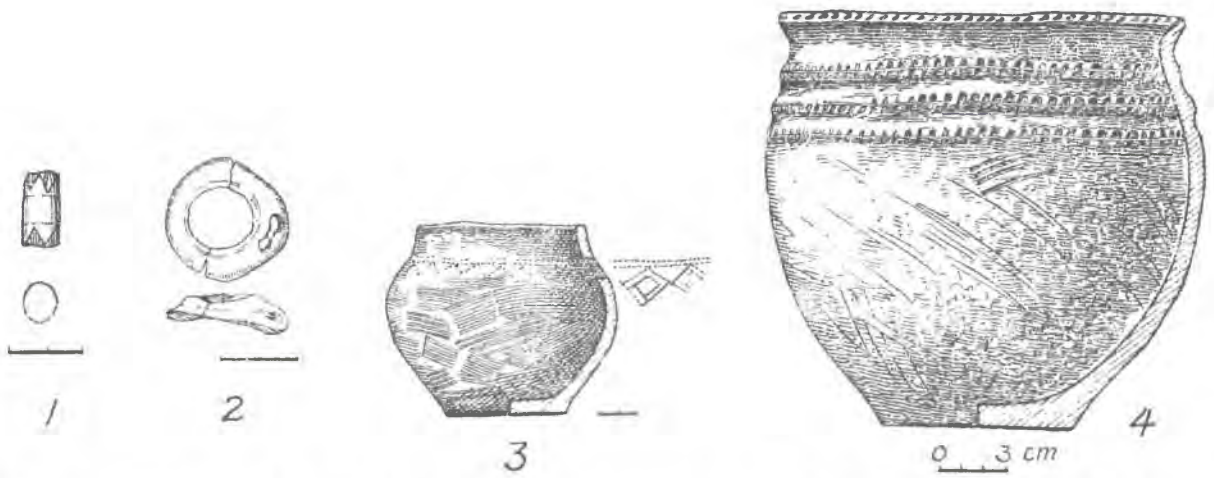


FIG. 373. Inventory from grave No. 6 of the cemetery at Politotdelskoe near Stalingrad (Volgograd). 1, bone bead; 2, bone pendant; 3, 4, pots. *After* Smirnov, 1959.

cattle bones, and the skeleton of a man lying on its left side equipped with a pot, a stone mold for an axe with a heavy socket, and a bone pendant (fig. 9). Another bone amulet was found in one of the barrows (kurgan No. 4) of Politotdelskoe near Nikolaevsk in the district of Stalingrad, located on a high terrace of the Volga River. The barrow contained 32 graves of different periods. Grave No. 6, which held the bone pendant (fig. 373, *2*) in association with pots (fig. 373, *3*, *4*) and a cylindrical bone bead ornamented at the ends with striated triangles (fig. 373, *1*) was one of the largest (2 × 1.6 × 4 m) and seems to be one of the oldest in this barrow. The man's body was strongly contracted, lying on its side, chest down and head oriented to the northeast – a posture characteristic of the early classical timber-graves. 1.25 m from the grave in a separate pit, a cow's or bull's skull and leg bones were found (Smirnov, 1959, p. 240). The pots had rounded shoulders; they were decorated with incisions from a sharp instrument and with dentate stamps (fig. 373, *3*). The clay was tempered with shells, was poorly fired, and was of a gray-black color, reddish on the surface, with dark spots. Pots decorated with incised ridges around the upper part of the pot (fig. 373, *4*) are analogous to pots in the northern Pontic area and also in the Baltic region, particularly in East Prussia. These similarities may not be accidental.

Timber-grave burials and pottery appeared in the Don and Donets River basins and along the northern coasts of the Sea of Azov. Their chronological position is shown stratigraphically and by datable objects like bone pendants (cf. one reproduced above from the cemetery of Akkermen on the Molochna River, fig. 325, *2*). The gradual disappearance of the North Pontic culture in this area and numerous Timber-grave finds in this particular phase indicates that the first large expansion of these people toward the Black Sea occurred not later than the eighteenth century B.C. The appearance of lavish decoration and of some Catacomb-grave motifs on Timber-grave pottery is connected with influences from the North Pontic substratum as seen on the richly decorated pots from Vladimirovka near Ostrogozhsk (fig. 374, *1-5*).

At about the same time the Timber-grave people probably reached central Russia. They spread northwards along the Tsna River to the Oka River Valley and even made sporadic appearances on the upper Volga (Popova, 1960). Barrow cemeteries with typical Timber-grave burials and pottery related to early classical pottery sprang up in the Don, Donets, and North Azov areas. The barrow cemetery of Malo Okulovo on the bank of the small Veletma River near Murom, district of Gorkij, yielded a rather archaic copper dagger (fig. 374, *10*) and slightly biconical pots decorated with cord impressed horizontal lines, zigzags, hanging triangles, Z-motifs and incisions (fig. 374, *6-9*). This type

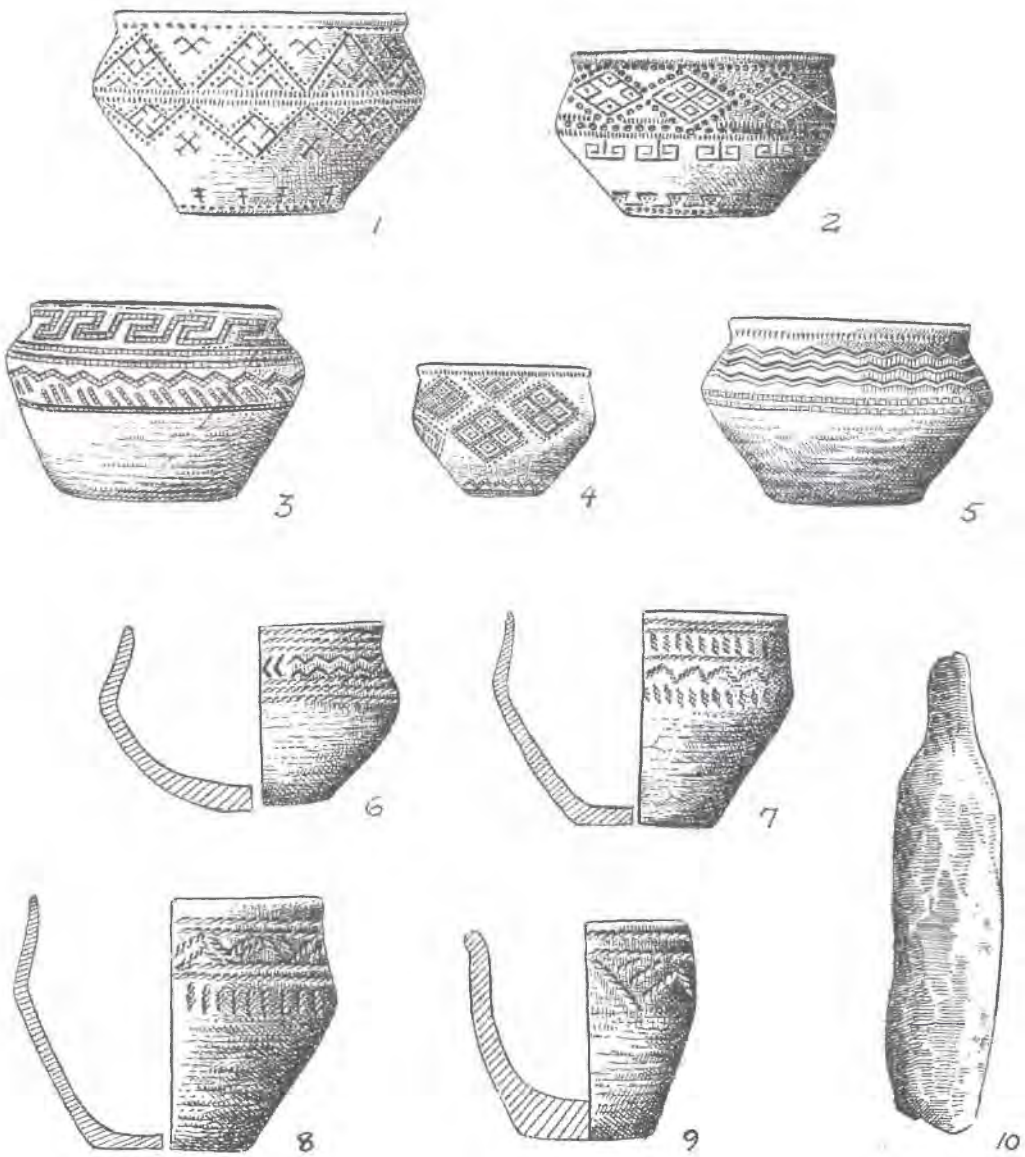


FIG. 374. **1-5,** pots from kurgan No. 1 of the cemetery of Vladimirovka near Ostrogozhsk; **6-9,** pots and **10,** copper dagger from the cemetery of Malo Okulovo near Murom, lower Oka. *After* Krivtsova-Grakova, 1955 **(1-5)** and Zbrueva, 1940 **(6-11).**

of decoration on the one hand is related to the decoration of Fat'janovo pottery in central Russia and, on the other, may have been influenced by North Pontic Catacomb-grave pottery.

Metallurgy was constantly growing as can be seen from great numbers of axes, sickles, and chisels or gouges. A concentration of bronze finds occurred between the lower Volga and the southern Ural mountains. So far, however, most of the bronzes have been isolated finds and dating them is a difficult matter.

Only one mold for an axe with a heavy socket and a narrow edge (from the grave of Kievka; fig. 9, *2*), in association with a pot and a bone pendant, has been found, but many axes of related type have turned up in habitation sites (some are now in the collections of the Stalingrad and Saratov museums; fig. 375). Many were found in the middle Volga area, particularly in the district of Kazan (Tallgren, 1916, pl. I; *see* references for the Turbino Culture). Their production center seems to have been located

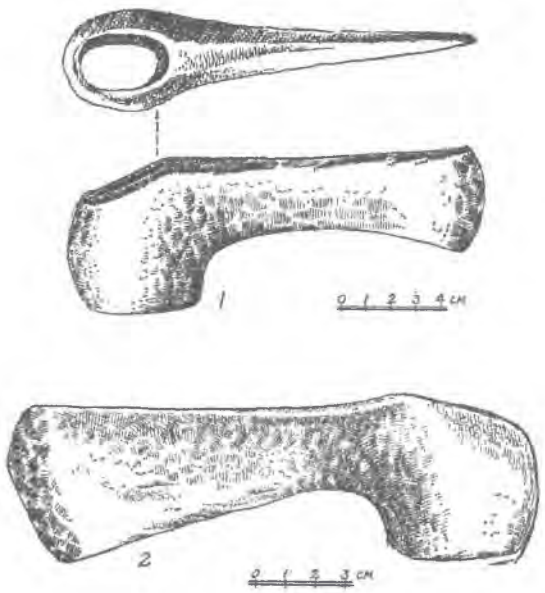


FIG. 375. Copper axes from southern Russia. **1,** Stalingrad archaeological museum; **2,** found near Khutor Popovka, district of Khvalynsk, Saratov Museum. *After* Shilov, 1959.

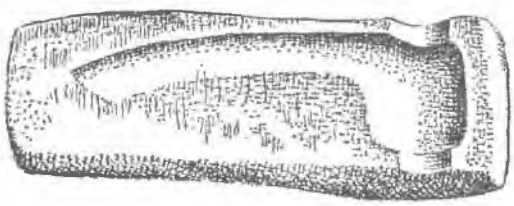


FIG. 376. Stone mold for an axe. Omsk Museum, western Siberia. Scale approx. 1/3. *After* Tallgren, 1916.

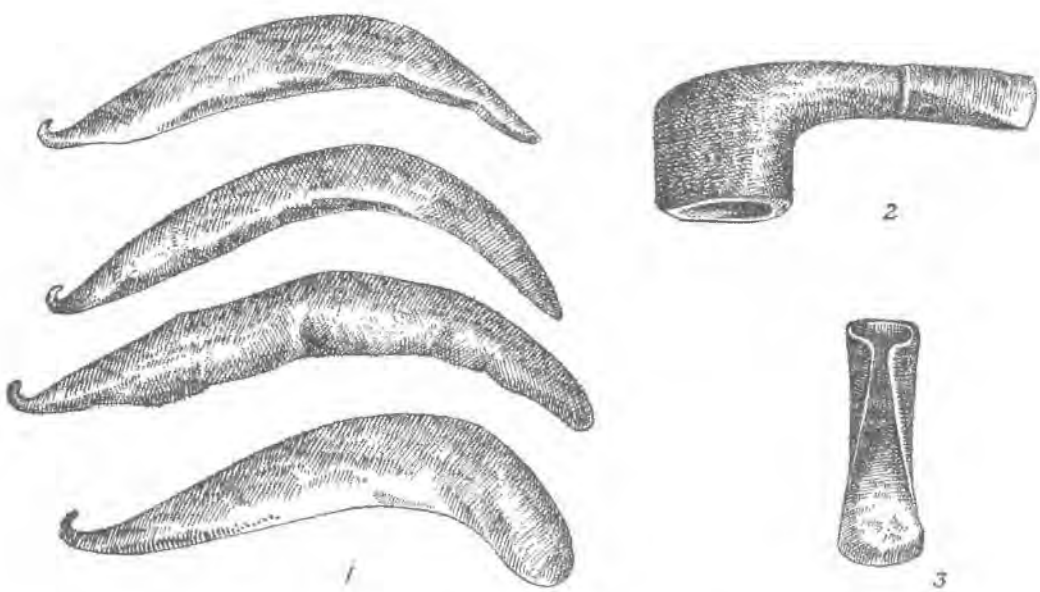


FIG. 377. **1,** copper sickles; **2,** axe; and **3,** chisel from the habitation site of Ibrakaj, district of Ufa, southern Urals. Scale *ca.* 1/3. *After* Akhmerov, 1955.

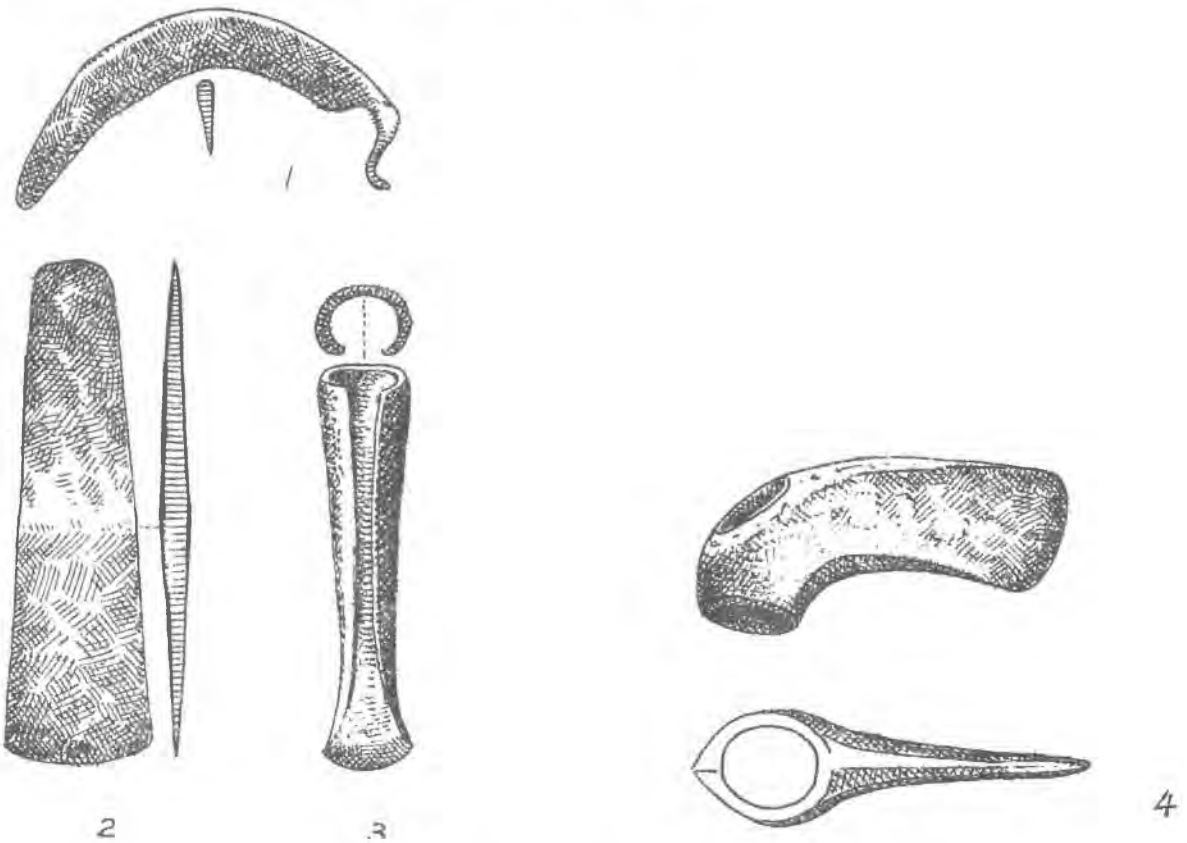


FIG. 378. **1**, copper sickle; **2**, adze; **3**, chisel; and **4**, shaft-hole axe from the barrow at Tsarev near Kujbyshev, lower Volga area, southern Russia. Scale approx. 2/5. *After* Krivtsova-Grakova, 1955.

in the southern Ural area, where molds for such axes appear. A mold for a similar axe is known from the museum of Omsk (fig. 376) and was found on the Yangez River in the district of Chkalov (Akhmerov, 1955, p. 82). A large hoard which included an axe with a very heavy socket and a narrow edge (fig. 377, *2*), 11 sickles up to 34 cm in length and 6 cm in width, with small hooks at the end (fig. 377, *1*), and a chisel (fig. 377, *3*), was found in the habitation site of Ibrakaj south of the city of Ufa. Similar finds (an axe, six sickles, and a chisel) were made at the village of Milovka, 7 km northwest of Ufa, Bashkiria, in 1872. Sickles of the same type and their molds were found in the site of N. Krasnojarka near Buguruslansk, district of Chkalov (Akhmerov, 1955, p. 82). The large Ibrakaj sickles are the earliest in the southern Ural-southern Russian area. Their form has no relation to the earliest sickles in central Europe.

There are many more bronze finds which belong typologically to the early classical phase, but their chronological position is uncertain since they were not found with pottery or other datable objects. In the tumulus at Tsarev near Kujbyshev a sickle (fig. 378, *1*), an adze (fig. 378, *2*), a shaft-hole axe (fig. 378, *4*), and a chisel (fig. 378, *3*) were found. The sickle and chisel are generally similar to those of the Ibrakaj type (fig. 377, *1*, *3*).

The relative date of the early classical phase is indicated by bone pendants. They show that it must run parallel to the early Únětice culture in central Europe, the Usatavo group northwest of the Black Sea, and the Babino group on the lower Dnieper. The copper axes are similar to stone boat-axes from the East Baltic area which probably were imitations of metal specimens. The early classical phase succeeds the Poltavka phase and is definitely earlier than the Pokrovsk horizon, thus allowing us to place the Kievka phase between the eighteenth and fifteenth centuries B.C.

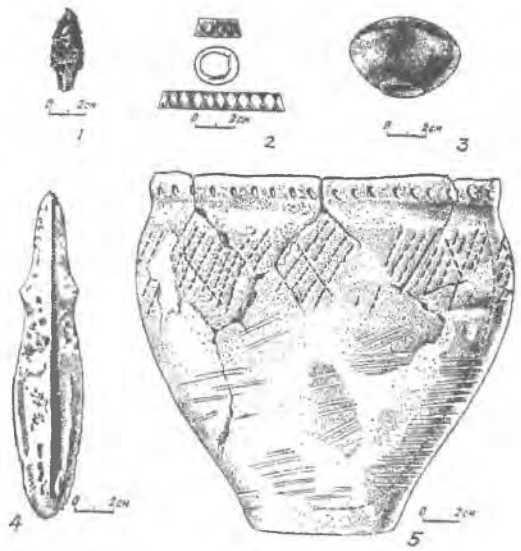


FIG. 379. **1**, arrowhead of quartz; **2**, bone finger-ring; **3**, macehead of serpentine; **4**, bronze dagger; and **5**, pot from grave No. 1, kurgan No. 1 of the cemetery of Bykovo I, district of Stalingrad (Volgograd). *After* Smirnov, 1960.

b. *The Late Classical Period, ca. 1450 – ca. 1100 B.C.*

The period between the middle of the second millennium B.C. and the begining of late Timber-grave culture can be divided into two phases, Pokrovsk and Jagodnoe.

i. *The Pokrovsk phase, ca. 1450 B.C. – ca. 1300 B.C.*

Commercial contacts during the Pokrovsk phase – widely distributed Sejma type spearheads (fig. 69, *1*, *2*), typical Timber-grave and Andronovo (Alekseevskoe) daggers or knives with broad, rounded blades and tangs (figs. 69, *3*, *4*; 379, *4*; 380, *12*, *13*; 381, mold), hollow bracelets (figs. 70, *6*; 380, *11*), hair-rings with overlapping and thick ends (fig. 70, *7*), ornamental plates (figs. 380, 10; 382, *4-10*), and small annular faïence beads, usually of white color (fig. 70, *1*) – indicate its chronological position. Since there are slight typological variations in metal and ceramic types, I am allowing a time span of more than 100 years for this phase.

Pot forms range from straight and round-shouldered to biconical types, usually wide-mouthed (fig. 380, *14-18*). They were decorated with dentate stamp impressions and incisions (usually over the upper part of the pot), ornamental motifs consisted of continuous or discontinous horizontal, diagonal, or zigzag lines, frequently forming patterns of triangles and rhomboids (figs. 379, *5*; 380, *14-18*). Undecorated pots were not infrequent. The clay was black but reddish on the surface, tempered with chamotte and sometimes with crushed shells.

Burial rites show a clear continuity from the earlier phase. Graves under round barrows had double roofs built of planks and beams. The dead lay contracted on their left sides, the head oriented to the north or northeast; animal skulls and legs, most frequently those of cows, were beside or above the grave as shown schematically in figure 359 and figure 365. Red ochre was still occasionally laid in graves.

The habitation sites occupied small areas, usually narrow terraces along rivers as in the site of Vtoroe Suskan, district of Kujbyshev (Merpert, 1958, pp. 82 ff.). The semisubterranean houses were small and almost quadrangular. One to three central posts supported a primitive beam roof. The beam ends met in the middle and were fastened to the supporting posts. The hearth was in the middle of the dwelling.

A number of graves from the large cemeteries in the lower Volga area belong to the Pokrovsk phase.



FIG. 380. Finds from the classical Timber-grave period, Pokrovsk phase. **1-3,** copper plate tubes; **4-7,** ornamented bone objects; **8, 9,** bone arrowheads; **10,** ornamental plate; **11,** hollow bracelet with overlapping ends; **12, 13,** copper daggers; **14-18,** pots. Berezhnovka cemetery, district of Stalingrad. Scale: **1-11** approx. 1/2; pots approx. 1/4. *After* Sinitsyn, 1954.

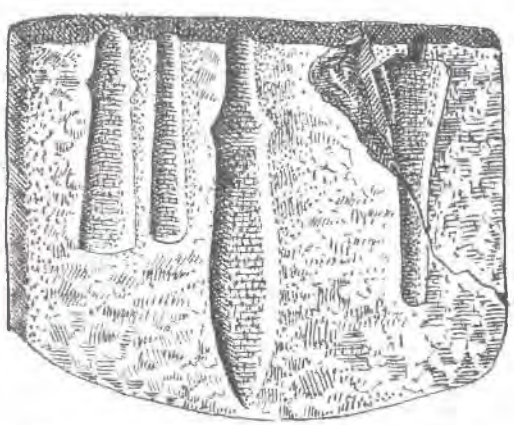


FIG. 381. Stone mold from Zirgan near Meleuz, south of Sterlitamak, district of Ufa, southern Urals. Scale approx. 1/3. *After* Tallgren, 1916.

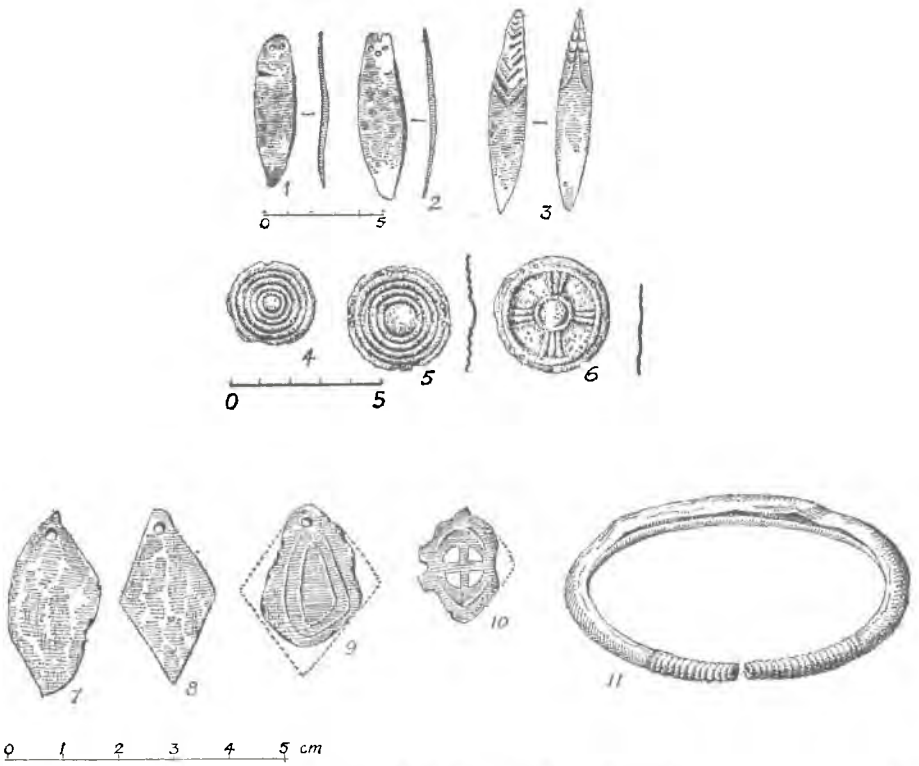


FIG. 382. **1-3**, pendants; **4-10**, ornamental plates; and **11**, bracelet from the richest grave (No. 13) of the Alekseevskoe cemetery near Kustanaj, upper Tobol' area. Andronovo culture. *After* Krivtsova-Grakova, 1948.

In addition to the Pokrovsk cemetery in the district of Saratov (Rykov, 1927), several other cemeteries deserve special mention: the cemetery of Berezhnovka in the district of Stalingrad, which yielded 45 classical timber-graves out of 200 excavated (Sinitsyn, 1954, 1959); Bykovo in the district of Stalingrad (Smirnov, 1960); Skatovka in the district of Saratov (Sinitsyn, 1956, 1959); Khutor Schulz near Kalmückenberg in the area of Saratov (Rau, 1929); and Ilovatka near Stalingrad (Smirnov, 1954). There are some important sites in the Don and Donets River basins: the cemeteries of Kamyshevakha in the former district of Bakhmut and Nikolaevka near Izjum (Gorodtsov, 1905); Skornjakovo near Voronezh (Sizov, 1888, Tallgren, 1926, p. 70, fig. 46); and the habitation site of Nadezhdino-Kurakino in the district of Penza (Krivtsova-Grakova, 1955, figs. 4 and 5).

Sites of this phase in the middle Volga area were excavated by the Kujbyshev expedition and include probably the earliest graves of barrows Nos. 1 and 2 of the Jagodnoe and Khrjashchevka cemeteries, which were overlaid by graves of the subsequent Jagodnoe phase. Other kurgans in these cemeteries were constructed in a fashion characteristic of the next phase (Merpert, 1954, pp. 41 ff.; 1958, pp. 79 ff.). In the central grave of kurgan No. 2 of the Jagodnoe cemetery a copper sickle was found (fig. 383), not curved and without hook or tang. Similar sickles occur during the late Timber-grave period; the Jagodnoe sickle is the first of a typological series of southern Russian straight sickles.



FIG. 383. Copper sickle from an early grave (grave No. 5) of kurgan No. 2 in the cemetery of Jagodnoe, district of Kujbyshev. Scale approx. 1/3. *After* Merpert, 1954.

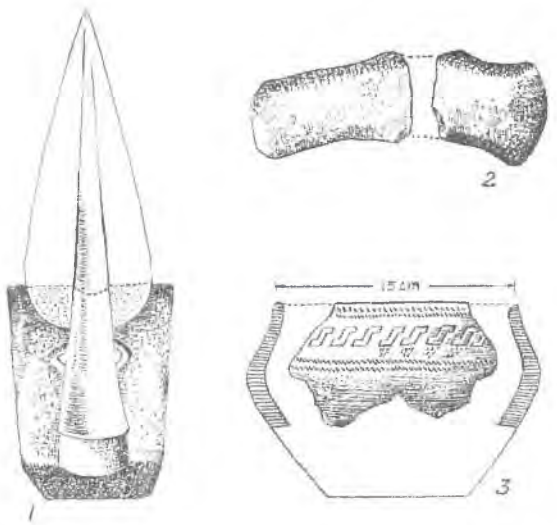


FIG. 384. Fragment of a mold for a spearhead, stone axe, and pot from a grave in the barrow at Podbornoe, lower Oka area. *After* Bader, 1958.

About 30 timber-grave sites were discovered in the upper and middle Oka River basin between Rjazan and the Kljazma River mouth. Some of them belong to the Pokrovsk phase. In the Podbornoe habitation site, where two rectangular dwellings were excavated by Bader (Bader, 1940), pottery appeared together with a hammer-axe and a mold for a spearhead of Sejma type (fig. 384). Another important northern site is the Piksjasi cemetery and habitation site on the Sura River, a tributary of the Oka River (Stepanov, 1955; Merpert, 1958, p. 81). The Oka River sites were labeled the "Pozdnjakovo culture" before the last war, after the habitation site of Pozdnjakovo near Murom (Bahder, 1929) and regarded as a separate entity. Increasing evidence indicates, however, that the "Pozdnjakovo culture" can hardly be separated from the classical Timber-grave culture.

In the northern part of the Timber-grave culture Sejma metal forms were found. A hoard found in 1893 near the village of Sabancheevo, between the Oka River and the Sura River in the Mordvinian ASSR, 5 or 6 km away from the Piksjasi Timber-grave habitation site and kurgan cemetery, consisted of three Sejma celts, one socketed spearhead, fragments of two knives, a dagger, a sickle, a pin, and six necklaces (Stepanov, 1955, p. 78). Unfortunately, neither illustrations nor a detailed description of this hoard has ever appeared.

In the habitation site of Pervoe Suskan, which belongs to the late Timber-grave period, there were found, in one limited area, the remains of an older habitation site containing pottery of an early southern Ural Andronovo (Fedorovo or Alekseevskoe) type contemporary with the Pokrovsk phase (Merpert, 1958, p. 130, fig. 21). This is a sign of Andronovo incursion as far northwest as the district of Kujbyshev.

ii. *The Jagodnoe phase, ca. 1300 B.C. – ca. 1100 B.C.*

On stratigraphical and typological evidence this phase has been located by Merpert in the Kujbyshev area (Merpert, 1958, p. 85 ff.). He noticed that some secondary graves in the earlier barrows differed in burial rites and timber constructions and that the barrows did not belong to individual graves but covered a number of graves – 10, 30, or even more. Barrows became "single kurgan cemeteries" in which members of one family or one kin-group were buried. Pit-graves of adults and children were arranged in concentric circles around a central sacrificial place or timber structure where ashes, charcoal, broken pots, cattle skeletons, or bones were found (fig. 360). The timber houses in graves were solidly built of oak beams and planks and were real houses, not much smaller than those in which people lived



FIG. 385. Pottery from the cemetery of Jagodnoe near Kujbyshev. Kurgan No. 5. *After* Merpert, 1954.

(fig. 361). Red ochre was not found in these graves. The dead lay contracted on their sides with heads pointed to the east or north. A number of pots had biconical or simple wide-mouthed, straight-walled shapes and were decorated with stamped zigzag or triangle motifs executed by a small dentate stamp (fig. 385). Thus in ceramic art there was not much change from the preceding phase. Copper artifacts also show a continuous character. Copper knives or daggers with broad blades, awls, and hair-rings with overlapping ends predominated (fig. 386, *1-4*). Small annular faïence beads appeared in graves, as during the preceding phase (Merpert, 1954, p. 113, fig. 31, *3*). In the cemetery of Jagodnoe wooden sheaths for knives were found (fig. 386, *5*, *6*).

The cemeteries representing this phase are: Jagodnoe and Khrjashchevka in the district of Kujbyshev, and Kajbely near Uljanovsk on the Volga, more than 100 km north of Khrjashchevka (Merpert, 1954; 1958, pp. 85-101). I call this phase "Jagodnoe" because of the classical form of its kurgan No. 5 (fig. 360), and because this phase was first worked out using its evidence.

Semisubterranean dwellings were larger, usually 12 to 20 m long (compare the above-mentioned and reproduced house plan from the habitation site of Uspenka in the district of Saratov, fig. 354). Along the walls were earthen beds; the hearth, which was about 1 m in diameter, was placed in the middle, but there were also smaller hearths dispersed in the dwelling area. Posts supported the roof, which was probably pitched.

A series of habitation sites in the lower and middle Volga area yielded a similar house type. In addition to the Uspenka site, such types were uncovered in the Mokshan site near Penza (Krivtsova-

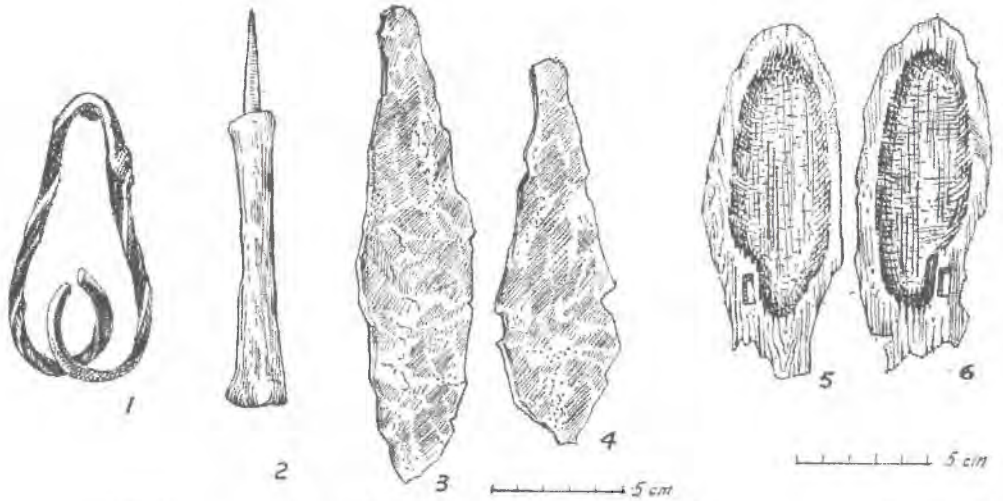


FIG. 386. **1**, copper hair-ring; **2**, wooden-shafted awl; **3**, **4**, knives or short daggers; **5**, **6**, wooden sheaths for knives. From the cemetery of Jagodnoe, district of Kujbyshev. *After* Merpert, 1954.

Grakova, 1941). Voskresenskoe on the Usa River in the district of Kujbyshev (Trubnikova, 1953), and others. In the Voskresenskoe site some houses were connected by corridors, a new element in the northern Timber-grave sites and probably an adaptation from the Turbino culture. Burial rites in the district of Kujbyshev differed from the usual Timber-grave type: some skeletons lay extended on their back, some on their right side, and some had been cremated (Merpert, 1958, p. 99).

Except for an influx of northern people during this latest classical Timber-grave phase, and the expansion of the Andronovo people from the southern Urals to the middle Volga area, the whole classical period seems to have been generally peaceful. This is shown by a cultural continuum which evolved only very gradually. For 500 years or longer Timber-grave ceramic art, social structure, economy, architecture, and burial rites remained homogeneous.

3. *The Late Timber-grave culture, ca. 1100 B.C. – ca. 800 B.C.*

Intensive armament and new expansions mark the beginning of the late Timber-grave period. The Timber-grave people crossed the Dnieper River and occupied the whole steppe belt of the western Ukraine (fig. 351); in the north they mixed with the Turbino people on the middle Volga, and were markedly influential in the area of Kazan. This was their period of greatest expansion before the beginning of the Iron Age.

The hoard which gives the strongest clue for the dating of this period in the lower Volga area and which is also significant for eastern Russia, Siberia, and even China, was found at Sosnovaja Maza near Khvalynsk in the district of Saratov (fig. 387). Its contents are now in the Moscow and Saratov Museums; they were first published in 1909 (*Izviestija Imp. Ross. Arkheologicheskoj Kommissii*, 29, p. 64) and mentioned by Tallgren in his *Pontide Prescythique*, 1926, p. 154. In the hoard were found 65 objects; of these, 50 were sickles or chopping implements of some sort with broad blades and holes for attaching hafts (fig. 387, *6*, *7*), five were daggers with broad blades, called daggers of Sosnovaja Maza type (fig. 387, *1*, *2*), four short and narrow gouges (fig. 387, *3*), and six socketed celts of two types decorated either with a herringbone design or with hanging triangles (fig. 387, *4*, *5*). The celts had one sloping and one flat surface and a loop below the socket-lip. The daggers and sickles, like the celts, were not all identical. There were two types of daggers, some 35 cm and some 33 cm in length, cast in several kinds of molds. Two of the 50 sickles had buttons instead of holes at the butt-end.

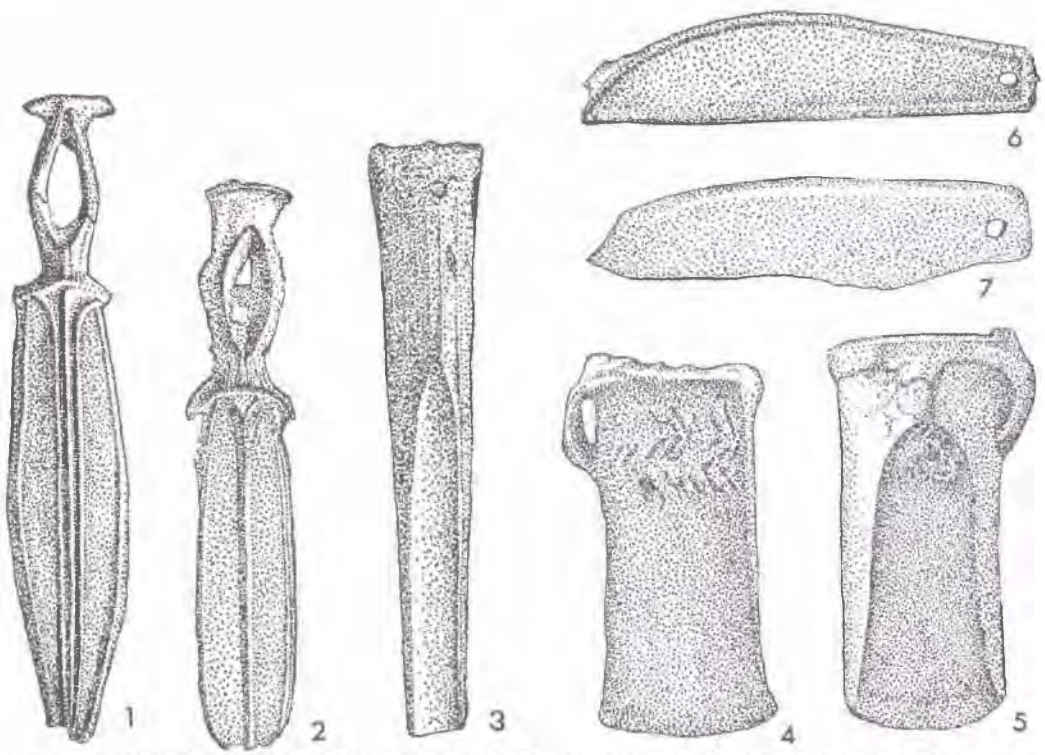


FIG. 387. Sosnovaja Maza hoard. **1, 2,** daggers; **3,** chisel or gouge; **4, 5,** socketed celts; **6, 7,** sickles of "Sosnovaja Maza type". Scale approx. 1/4. *After* Tallgren, 1926.

Socketed celts from the western Ukraine indicate relations between the lower Dnieper and Dniester area and the lower Volga area. Dagger and spearhead forms in these regions were also similar (cf. forms from the foundry of Krasnomajatsk, fig. 397). Finds show general similarity to the lower and middle Volga area and even Kazakhstan; celts with loops and flat sides have been found from southern Russia to northern China. There is no doubt about the relationship in form between the Sosnovaja Maza celts (fig. 388, *1*, *2*), the celts found around Kazan and Vjatka in the forest zone west of the middle Urals (fig. 388, *3*), the celts found in Uty in the Minusinsk area in central Siberia (fig. 388, *4*), in Suiyuan (now in the Kyoto Museum), and in northern China (fig. 388, *5*). Unfortunately, the socketed celts illustrated in figure 388, *3-5* are all isolated finds.



FIG. 388. Socketed celts from **1, 2,** Sosnovaja Maza; **3,** Kazan, northeastern Russia; **4,** Minusinsk, Siberia; **5,** northern China. Scale 1/4. *After* Tallgren, 1916 and 1937; Martin, 1894; Loehr, 1956.

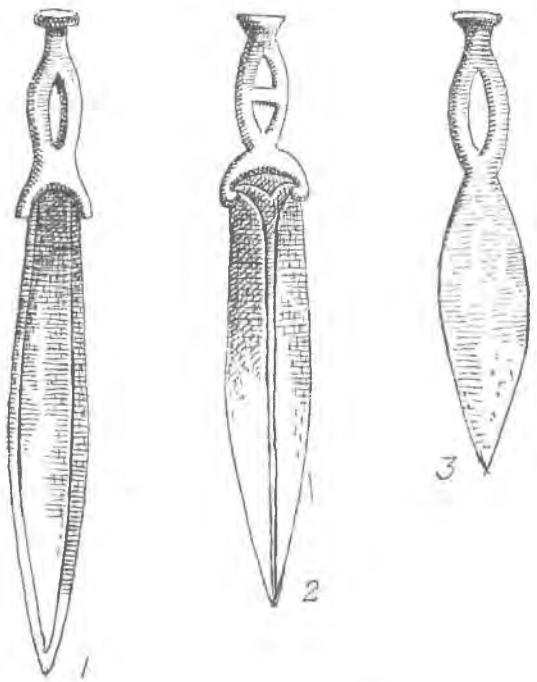


FIG. 389. Daggers from the western Ukraine, southern Russia and Siberia. **1,** Rozubowice, district of Peremyshljany, western Ukraine; **2,** Sosnovaja Maza, southern Russia; **3,** Minusinsk, central Siberia. Scale: **1, 2,** 1/4; **3,** 1/2. *After* Sulimirski, 1937; Tallgren, 1937; Loehr, 1956.

The daggers of Sosnovaja Maza very probably represent a type developed and diffused by the Timbergrave people in the lower Volga area and the southern Urals. Their blades were broad and recall daggers which were current during the classical period. Their occurrence in the vicinity of Minusinsk in central Siberia (Tallgren, 1926, p. 42) as well as in the western Ukraine (Ebert, 1921, p. 73, fig. 29), indicates that they were distributed over a wide region (fig. 389). Neither in central Siberia nor in central Europe are there prototypes for such daggers.

Molds for Sosnovaja Maza sickles have been found in the region enclosed by the lower Volga (Saratov and Kujbyshev area), the southern Urals, and the region west of the middle Urals (fig. 390); the type is certainly native to this area. At the mouth of the Don River close to the village of Staraja Nogavska, a peculiar dagger with a curved blade and three saddle-like projections on the back of the

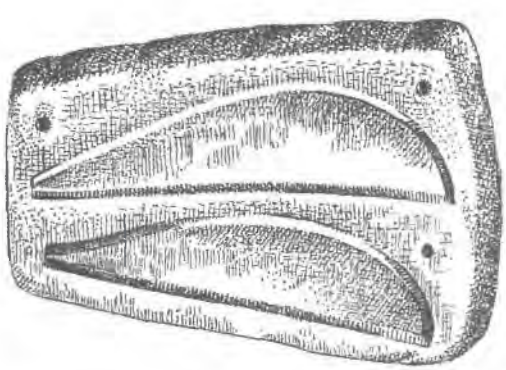


FIG. 390. Stone mold for sickles from Voskresenskoe, former district of Ekaterinburg, gov. Perm. Scale approx. 1/4. *After* Tallgren, 1916.

blade was found before 1902 (Tallgren, 1937, p. 106). It has a handle of the Sosnovaja Maza type (fig. 391), but it is even longer than the Sosnovaja examples: 41.5 cm in length, and the blade, 7 cm in width. This sabre-dagger is at present unique, but the type of handle indicates its southern Russian origin. Unfortunately, Sosnovaja Maza daggers and celts have so far not been found in graves.

In the habitation site of Grachevskij Sad on the Samarka River near Kujbyshev, fragments of a mold for large sickles were found which are said to be related in form to the Sosnovaja Maza sickles (Krivtsova-Grakova, 1955, p. 45). The pottery of this site differed from classical Timber-grave pottery by a decorative ridge around the neck alongside dentate stamped incisions. The ridge was plain or incised with diagonal lines, with crosshatches, or with a herringbone motif. Biconical forms were no

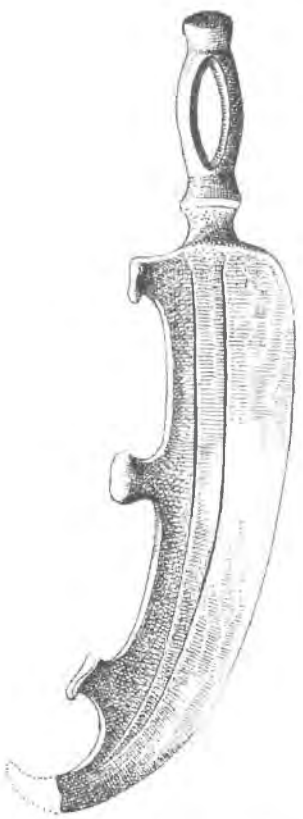


FIG. 391. A sabre-dagger from Staraja Nogavska, mouth of the Don River. Isolated find. *After* Tallgren, 1937.

longer predominant; the walls were usually round or straight. Related pottery types appeared in the habitation sites of Ljapichev on the Don River (Krivtsova-Grakova, 1955, pp. 96-97, figs. 8 and 9), of Ivanovka, 6 km south of Khvalynsk, (Orekhov, 1916), of Pervoe Suskan in the Kujbyshev area (Merpert, 1958, pp. 122-128, figs. 16-20), of Kajbely north of Kujbyshev (Merpert, 1958, p. 143, fig. 24), of Komarovka and several other sites around Lake Moechnoe and along the Usa River in the district of Kujbyshev (Alikhova, 1958; Trubnikova, 1954, 1958), of Balyma in the district of Kazan (Kalinin and Khalikov, 1954), and in many other sites. To illustrate late Timber-grave pottery I am reproducing here several pots and sherds from the Ljapichev site (fig. 392) which probably is more or less contemporary with the hoard of Sosnovaja Maza, and from the site of Ivanovka (fig. 393) which represents the end of the Timber-grave pottery sequence.

Pots decorated with ridges were not predominant; many pots were simple, wide-mouthed, frequently unornamented or with just several holes on the sides, probably for hanging. A number of vessels were

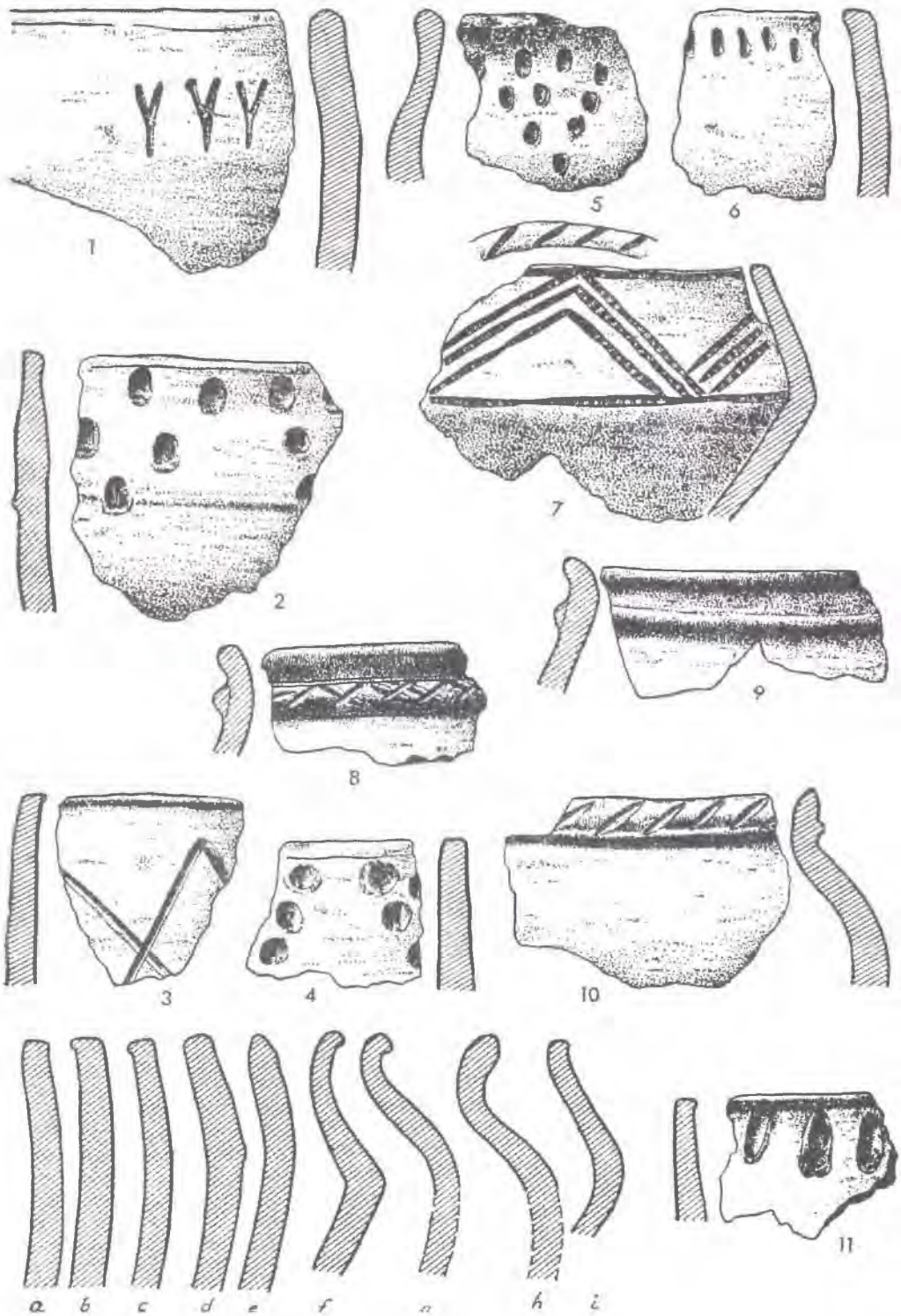


FIG. 392. Late Timber-grave pottery from the habitation site at Ljapichev on the lower Don. **1-10,** sherds from semi-subterranean dwelling No. 2; *a-i,* profiles of the pots; and **11,** a sherd from dwelling No. 1. Scale approx. 1/4. *After* Krivtsova-Grakova, 1955.

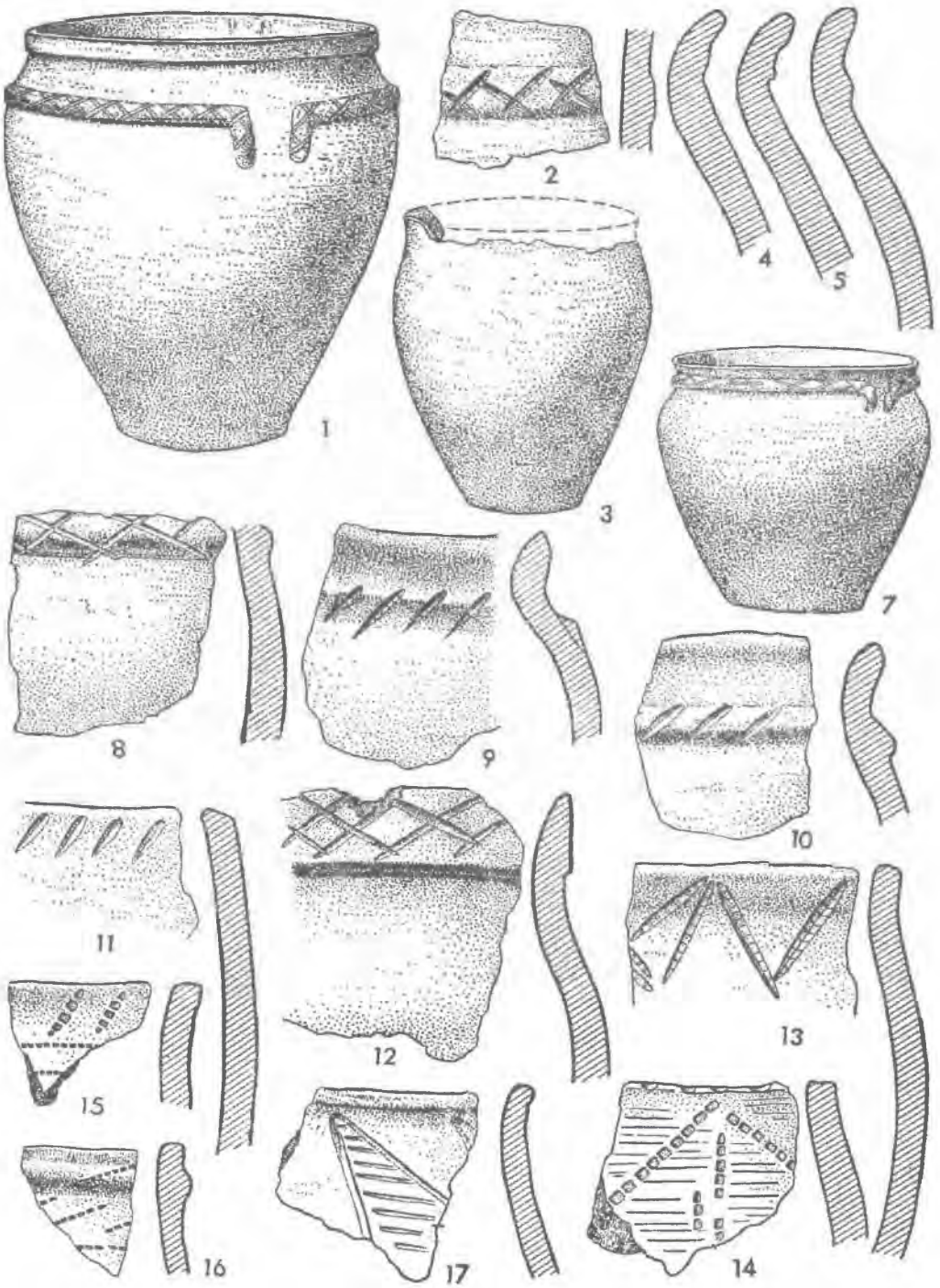


FIG. 393. Reconstructed pots and sherds from the late Timber-grave habitation site at Ivanovka near Khvalynsk on the lower Volga. *After* Krivtsova-Grakova, 1955.

decorated over the upper part by rows of incisions, by incised cross motifs, dentate stamp impressions, or horizontal grooves. Incised ornamentation was dominant in opposition to stamped decoration during the classical period. In general, ceramic art did not make any particular progress: the clay was still not well fired; the surface was a yellowish color and a gray or black on the inside. The clay was tempered with chamotte, sand, talc, or crushed shells.

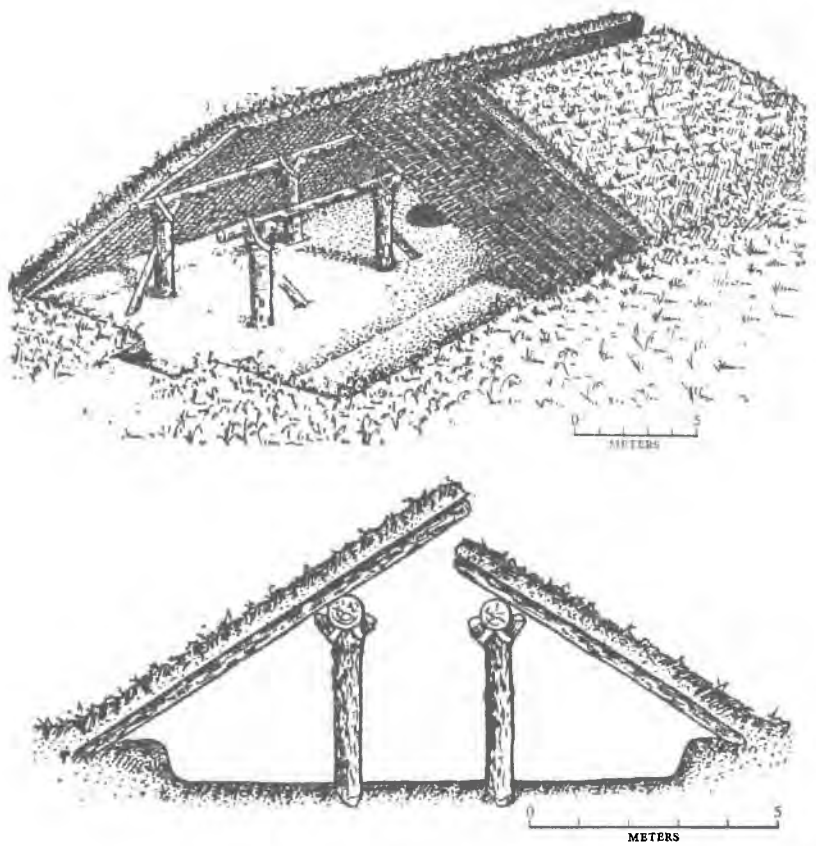


FIG. 394. Reconstruction of the late Timber-grave semisubterranean house. Pervoe Suskan site, district of Kujbyshev. *After* Merpert, 1958.

The habitation sites were arranged on high river terraces or promontories with steep sides, naturally protected by ravines and water. In this respect villages differed markedly from those of the classical period, when the defensive character of habitation sites was not so marked.

The house type was a large, rectangular semisubterranean dwelling, about 20 or more meters long and from 8 to 14 m wide, with two parallel rows of posts along the middle of the house which supported the roof. The turf-covered roof was the essential part of the house above ground; it was pitched and its ends rested on the ground. There were no walls; the entrance was from the end. Judging from the remains of roof and posts, the height of such dwellings from the floor to the top of the post was evidently about 3 m. Hearths were in various parts of the dwelling. The best preserved and excavated dwellings from recent discoveries are from the Pervoe Suskan site (Merpert, 1958, pp. 107-118): the excavator's reconstruction is reproduced in figure 394.

Although we still use the name "Timber-grave" for this period, mortuary timber houses were no longer built, and round barrows had almost disappeared. Cemeteries consisted of a number of low barrows joined to each other at the base, in some cases forming a solid long bank up to 350 m in length (as in the cemetery of Khrjashchevka which is connected with the Pervoe Suskan site: Merpert, 1958, p. 137). Barrows became flat and elongated, covering a number of graves, from 40 to 100 or more (fig. 395). Instead of houselike structures, sometimes light grave coverings made of wooden rods were used. Only the posture of the dead remained the same: skeletons lay on the side, usually on the left, with contracted legs and arms. The orientation was most frequently to the north. Red ochre was never found in the graves.

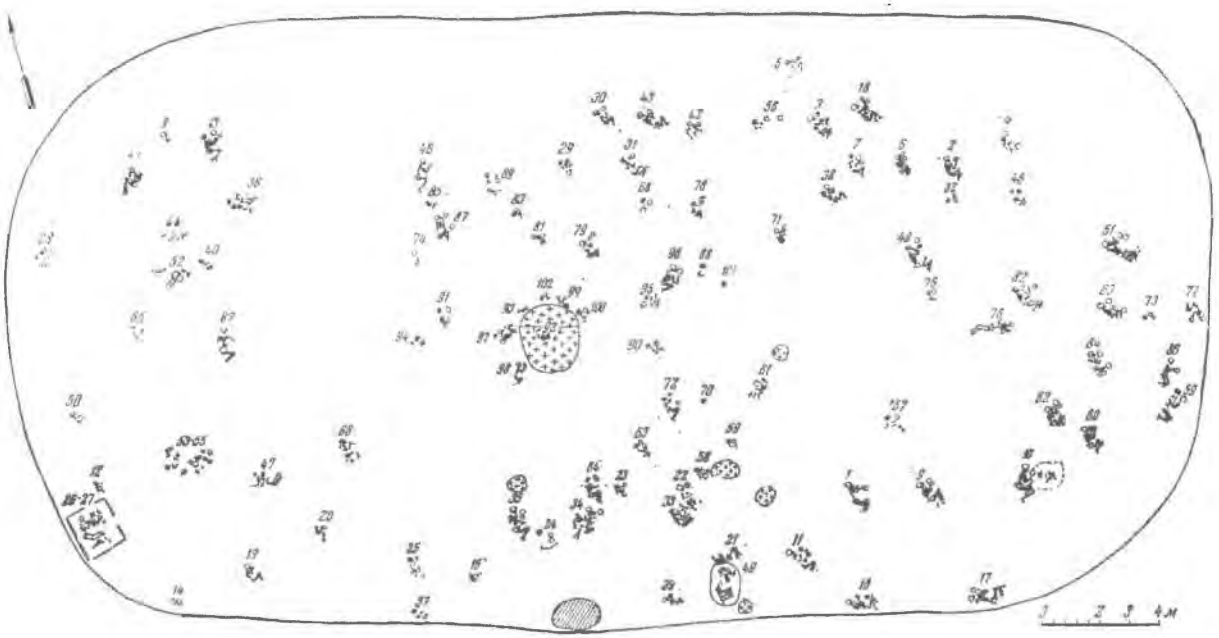


FIG. 395. Plan of a late Timber-grave one-barrow cemetery. Kajbely, district of Kujbyshev. In the middle, an offering place. *After* Merpert, 1958.

4. *Westward expansion of late Timber-grave people*

Westward expansion (fig. 351) seems to have occurred at the beginning of the late Timber-grave period and produced a rapid cultural revolution. The population acquired a warlike character as is shown by weapons and the defensive nature of habitation sites, while large dwellings and cemeteries indicate the growth of population. This was the second vigorous expansion of the Timber-grave people, which was terminated only by the Scythian incursions into central Europe.

The appearance of a new culture in the lower Dnieper, lower Southern Bug, and lower Dniester valley is indicated by a sudden change in metal types, a remarkable increase in metal and metallurgical working, the changed character of the habitation sites, the absence of typical North Pontic graves, and the amazing similarity of pottery decoration between the Dnieper and Volga areas.

Bronze objects northwest of the Black Sea throughout the second millennium B.C. were either Caucasian or east central European in origin. Hoards like that of Berislav (fig. 342) are the last representatives of Caucasian forms; the hoards of Avraamovka (fig. 102) and Koblevo (fig. 98) near Odessa were the last to contain eastern central European forms. Because of similarities between central European Urnfield II and Troy VII B_2 forms I have dated these hoards to the twelfth century B.C.; hence the change that occurred was very likely contemporaneous with the end of the Koblevo-Berislav horizon and should be placed around 1100 B.C.

A series of hoards and workshops bear witness to increased metallurgy. The most significant ones are the following: the foundry of Krasnomajatsk on the lower Dniester; the habitation site and foundry at Volozhsk on the right bank of the lower Dnieper near Dnepropetrovsk, which yielded 70 molds (Bodjanskij, 1952, p. 165; *see* references for the North Pontic Culture); the Novogrigorjevka hoard on the small Konka River, a tributary of the lower Dnieper, consisting of copper ingots and of 50 artifacts, celts, and sickles (found in 1865: Tallgren, 1926, p. 150); the Voznesenka hoard near Zaporozhe which contained nine flat and hexagonal molds of slate, calcareous tufa, and other stones for socketed celts, spearheads, chisels, sickles, and pendants (Tallgren, 1926, p. 150); the Novo-Aleksandrovka hoard in the

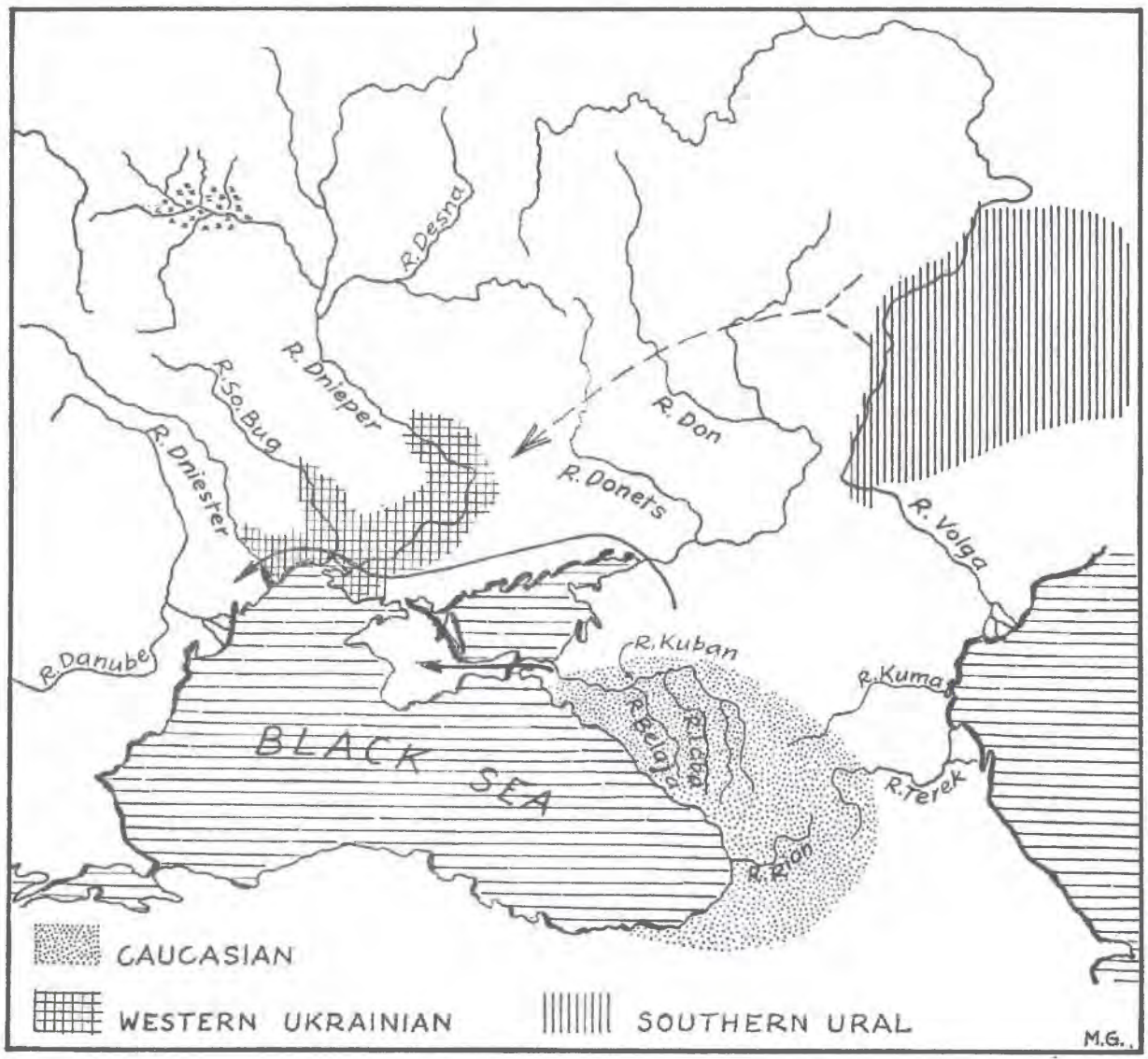


FIG. 396. Metallurgical centers in the Caucasus, southern Urals, and the western Ukraine. ←——— Influences of the Caucasian center during 2000-1100 B.C. ←- - - - - Influences of the southern Ural center at the end of the second and the beginning of the first millennium B.C.

district of Kherson consisting of more than ten molds (Dobrovol's'kij, 1922, 1956; *see* references for the North Pontic Culture); the hoards found at Kardashinka at the mouth of the Dnieper and south of Derevnaja near Kiev containing a great many molds made of soapstone and other stones for socketed celts, daggers, sickles, spearheads, and chisels (pls. 98, 99); and the Zarichie hoard in the district of Vasilkov consisting of a two-valved mold for a socketed celt and a two-valved mold for a spearhead and a chisel (Tallgren, 1926, p. 151, fig. 86). The greatest number of hoards and habitation sites containing molds, copper ingots, and slag were discovered near the Black Sea, along the lower Dnieper, especially in the vicinity and south of Dnepropetrovsk, and along the Southern Bug River to the district of Pervomajsk in the north (fig. 396).

The existence of local metallurgy is indubitable, but the question is: where did the materials originate? There are no tin sources, and the closest copper mines are located in the region of Krivoj Rog southwest of Dnepropetrovsk (Khmyrov, 1875; *see* references for the North Pontic Culture). At present, we do

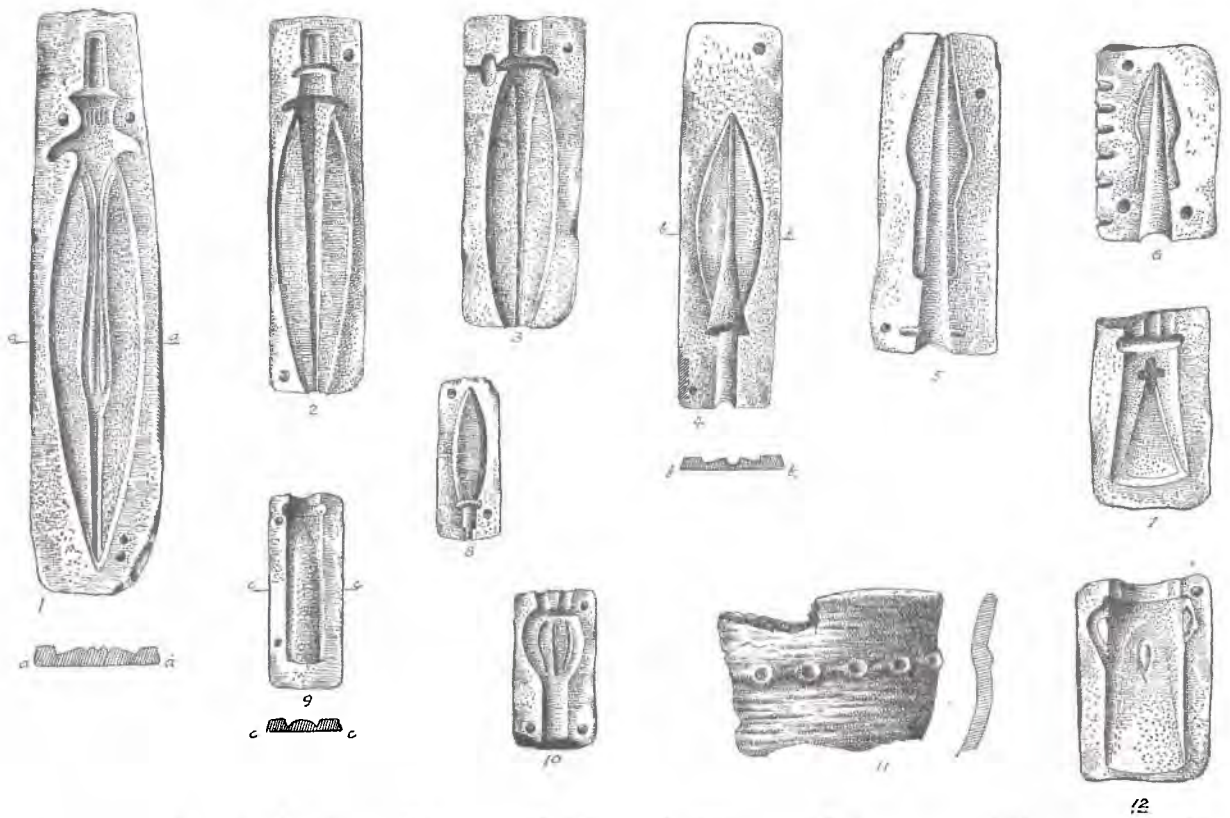


FIG. 397. Finds from the foundry of Krasnomajatsk (Krasnyj Majak), lower Dniester area. **1-10, 12,** stone molds; **11,** pottery sherd. Scale approx. 1/3. *After* Krivtsova-Grakova, 1955.

not have the results of any chemical analyses to tell us the composition of the bronze objects. Copper ingots could have been imported from the southern Urals.

Typological differences and commercial relations make classification of the western Ukrainian metal types into several successive chronological groups possible.

The *Krasnomajatsk* (*Krasnyj Majak*) *phase* is named after the workshop on the lower Dniester (fig. 397). The dagger forms are related to those in the Sosnovaja Maza hoard of the lower Volga area (fig. 397, *1-3*). In addition to the Krasnomajatsk workshop, the Voloshsk workshop is an outstanding find (Bodjanskij, 1952), and there have been a number of isolated finds. Among the latter are daggers with ornamented blades and hand guards (fig. 398) related to those of Sosnovaja Maza.

It is clear that during this phase the area between the lower Dniester and Dnieper was in close touch with all of southern Russia, particularly with the lower and the middle Volga area, although not with the Caucasus. The same or related metal types were found even in the area of the Volga and Kama River confluences in the district of Kazan.

There were two kinds of spearheads in the Krasnomajatsk hoard: socketed (fig. 397, *5*, *6*) and tanged (fig. 397, *4*, *8*). The socketed spearhead had a peculiar-shaped leaf which curved inward to parallel the form of the socket. Molds in the foundry of Krasnomajatsk indicate that this kind of spearhead was manufactured locally. The type does not seem to be of central European origin, for only a few isolated examples are known from Hungary (fig. 399, *1*). A related type of spearhead occurs well away from the lower Dnieper area, in the middle Volga region of eastern Russia (fig. 399, *3*). Further analogies are in Chinese late Yin and early Chou period (Loehr, 1956, figs. 36, *D*, *E*; 37; 40, *a*; pls. XIV, *25*; XV, *26*). This type of spearhead is then Asiatic in origin and was diffused by the steppe people over an enormous

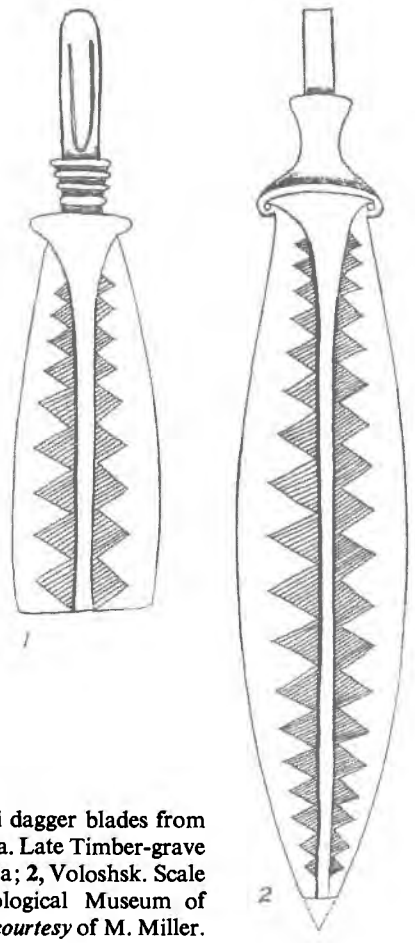


FIG. 398. Ornamented dagger blades from the Dnieper rapids area. Late Timber-grave culture. **1,** Striltsa Skela; **2,** Voloshsk. Scale approx. 1/2. Archaeological Museum of Dnepropetrovsk. *By courtesy* of M. Miller.

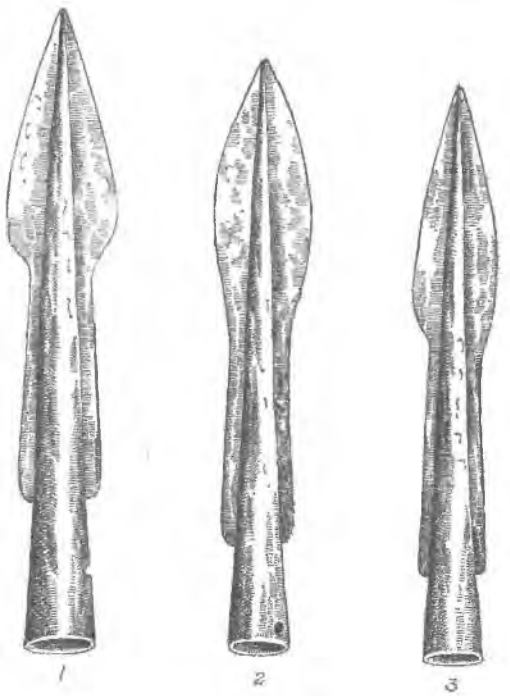


FIG. 399. Spearheads from: **1,** Hungary; **2,** western Ukraine; and **3,** middle Volga area. Scale 1/4. **1,** *after* Hampel, 1887; **2,** *by courtesy* of M. Miller; **3,** *after* Tallgren, 1916.

area of Eurasia. To the western coasts of the Black Sea it had to be brought by the expanding Timber-grave people. The beginning of the Chou period in China on the basis of reconstructed bamboo annals is 1027 B.C. (the traditional date is 1122 B.C.; for discussion of chronological problems see Karlgren, 1945, pp. 101-144; references for the chapter on Chronology). The end of Yin (late Shang) falls in the twelfth and early eleventh centuries B.C. The date of late Yin and early Chou must be taken into consideration regarding the appearance of the spearheads in question in the early phase of the late Timber-grave culture. *Ca.* 1100 B.C. used by the author for the beginning of it on the basis of central European and Anatolian chronology (as *post* Urnfield II and Troy VII B_2) seems to conform relatively well to the Chinese dates.

Tanged spearheads have not been found in central Europe except in eastern Rumania (Bandul Câmpiei, Mt.: Roska, 1942, Thesaurus). Many of them come from foundries and hoards west of the lower Dnieper (like that in fig. 397, *4*). Similar spearheads occur in the middle Volga area (Tallgren, 1916, pl. VI, *1-4*), in Kazakhstan (Chernikov, 1954, p. 47, fig. 23, *1*), and in the northern Caucasus (fig. 346).

The Krasnomajatsk foundry must be contemporaneous with the habitation sites of so-called Sabatinivka type. In both the hoard and settlements pottery decorated with ridges and finger-tip imprints appeared (fig. 397, *11* and fig. 400, *1*, *3-5*). Pot handles sometimes had knobs on top (fig. 700, *2*) like those from late Monteoru (fig. 157, *5*). The habitation site of Sabatinivka on the lower Southern Bug near Uljanov in the district of Odessa has revealed a large rectangular dwelling with remains of clay

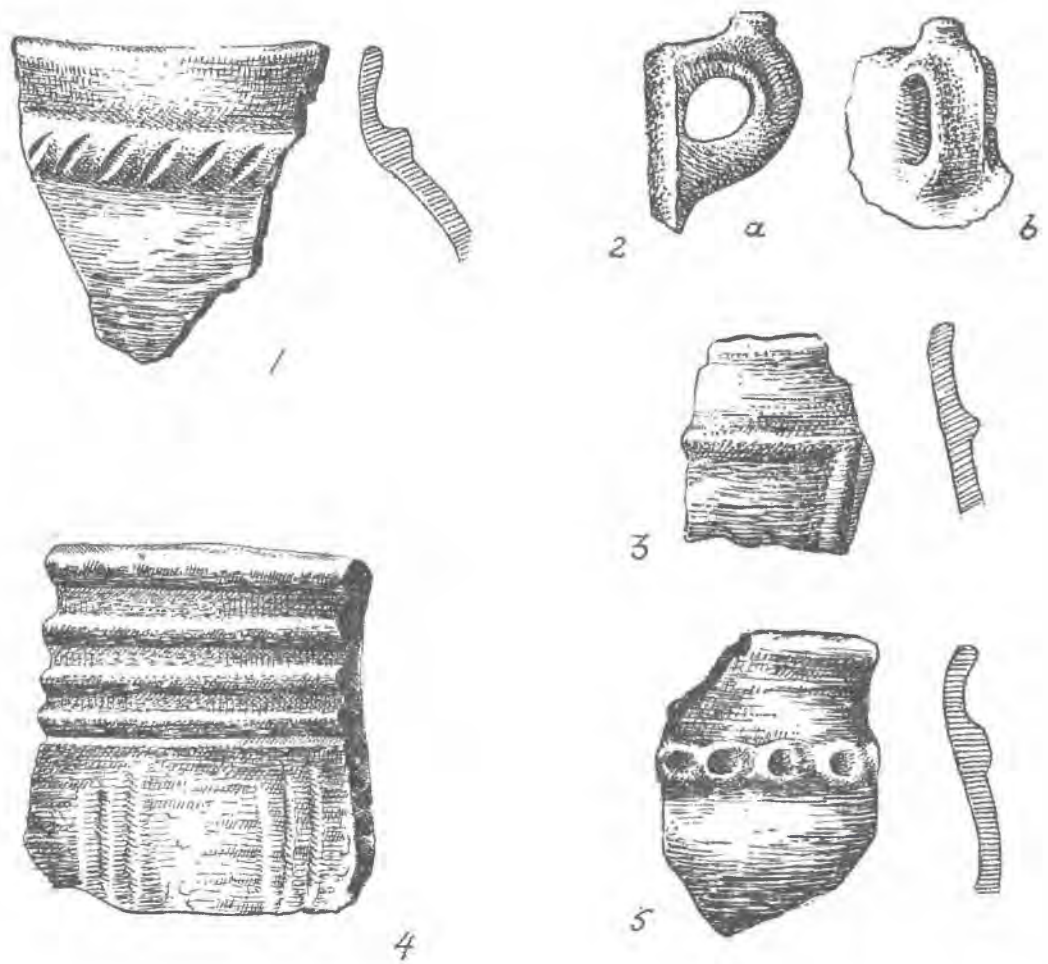


FIG. 400. Sherds from the habitation site of Sabatinivka, lower Dniester area. Scale 1/3. *After* Krivtsova-Grakova, 1955.

walls. Among potsherds (fig. 400), bone tools, animal bones, and traces of metallurgical activity, a cheekpiece of antler from a horse's bridle was found (Dobrovol's'kij, 1952; Krivtsova-Grakova, 1955, p. 122). Sabatinivka and a number of related sites (a list of the "Sabatinivka" sites is given by Krivtsova-Grakova, 1955, pp. 122 ff.) show some persistent northern and western Pontic features. Houses with clay walls and ridged pottery continued, but new metal forms, the horse's bridle, and the spread of the same type of bronzes and of pottery in the Volga area indicate considerable cultural changes which can be explained only by the westward expansion of the Timber-grave people.

The *Kobakovyj Khutor phase* is named by the author after the hoard found at Kobakovyj Khutor on the east side of the Dnieper near the mouth of the Orel River (fig. 401). The metal form – daggers, tanged spearheads, socketed celts with one or two loops, gouges and awls – were more advanced than those of the preceding phase. The largest number of hoards and foundries belong to this phase. To it belong the workshops of Kardashinka at the mouth of the Dnieper (pl. 98) and of Derevnaja near Kiev (pl. 99). Large, broad sickles (fig. 401, *4*-6) in association with short socketed celts (fig. 401, *2*, *3*) and a tanged spearhead (fig. 401, *1*) were found in the hoard of Kobakovyj Khutor. The same kind of broad sickles are found in the Volga basin (cf. sickles from Bashkiria: fig. 402) and the hooked end of a similar sickle was found in the late Timber-grave habitation site of Komarovka at Lake Moechnoe in the

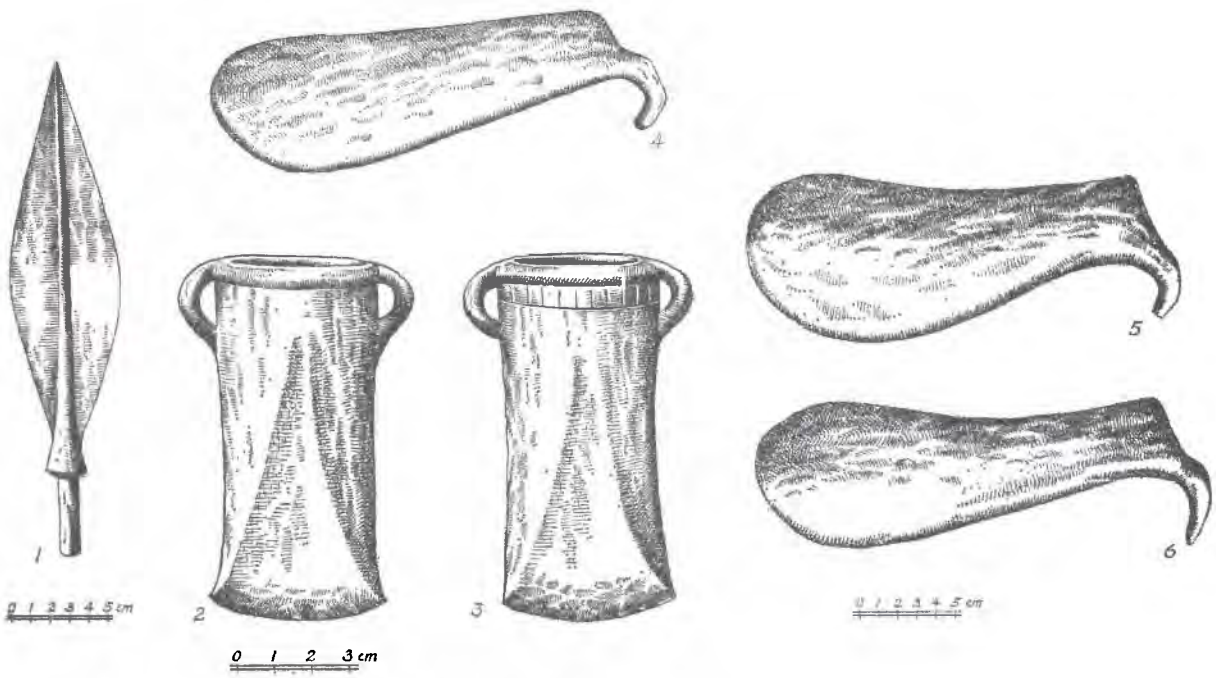


FIG. 401. Bronze types from the hoard of Kobakovyj Khutor near Kobelsk. Poltava museum. **1**, spearhead; **2, 3**, socketed celts; **4-6**, sickles. *After* Gorodtsov, 1928.

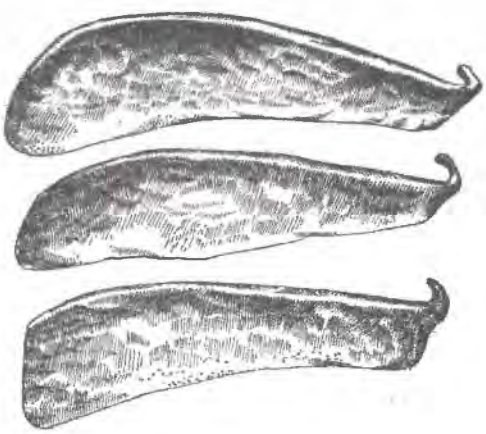


FIG. 402. Broad copper sickles found in the area of the Zaj and Kichuj Rivers in Bashkiria. Scale approx. 1/4. *After* Nefedov, 1889.

middle Volga area (Alikhova, 1958, p. 161, fig. *4*, *8*). The socketed celts with two loops from the foundries and hoards of the lower Dnieper area (fig. 403, *3*, *4*; pl. 98, *lower row*) have indubitable parallels in the middle Volga-lower Kama area where such socketed celts have been found both in habitation sites and in isolation (fig. 403, *1*, *2*). The same types spread to the northern Caucasus (fig. 345, *5*, *6*). To this phase must be assigned the molds and spearheads found at Tsiurupinsk, district of Kherson (fig. 404). One of the spearheads had ornamented wings with striated triangles; the socket was decorated with water-bird

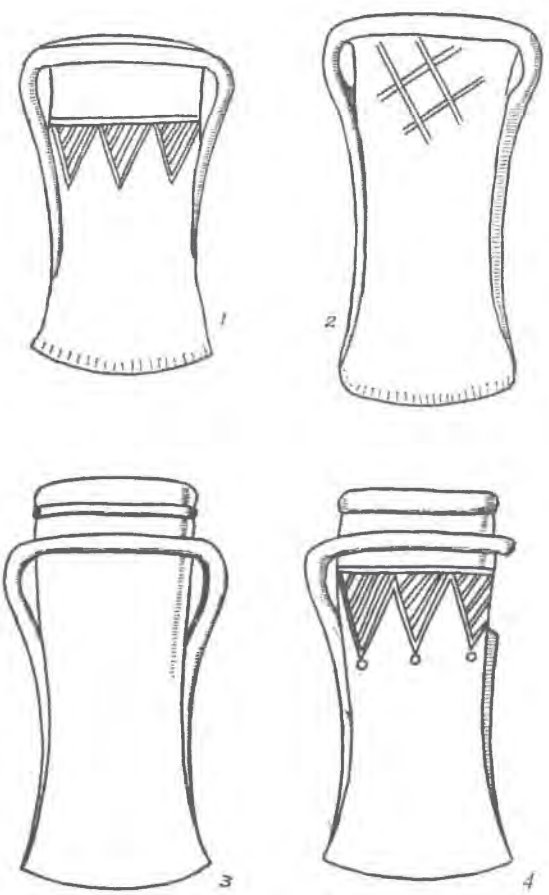


FIG. 403. **1, 2,** socketed celts from the middle Volga area; and **3, 4,** from the lower Dnieper area. **1, 2,** district of Kazan, isolated finds; **3, 4,** Kryvoj Kut hoard (?), west of the lower Dnieper. Scale approx. 1/2. *After* Tallgren, 1916 **(1, 2)** and Museum of Dnepropetrovsk **(3, 4)**.

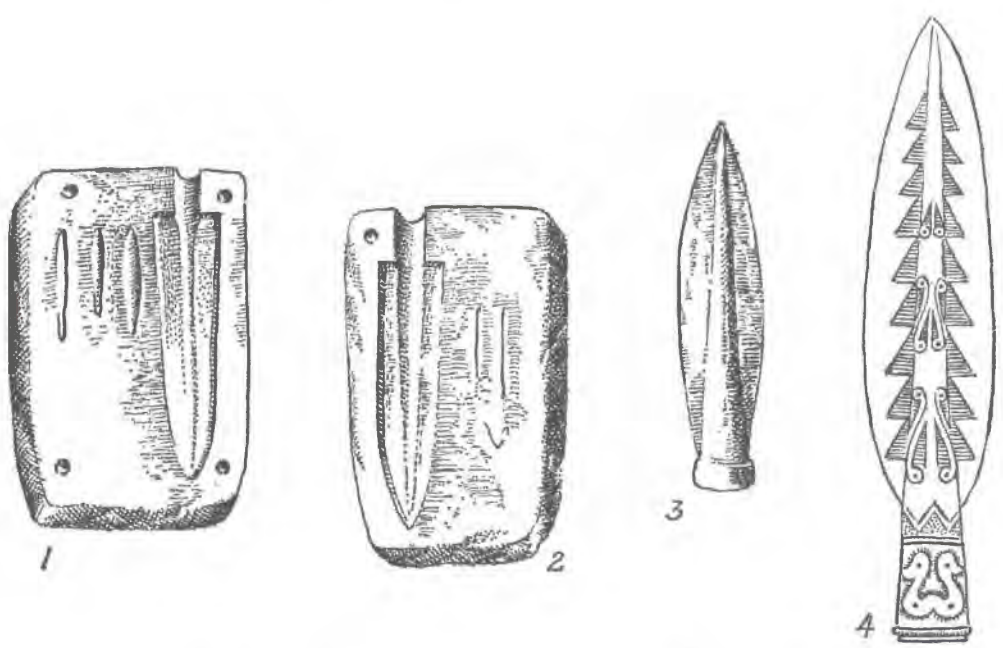


FIG. 404. Molds and spearheads from Tsiurupinsk, district of Kherson, western Ukraine. Scale 1/3. *After* Tallgren, 1925, and Krivtsova-Grakova, 1955.

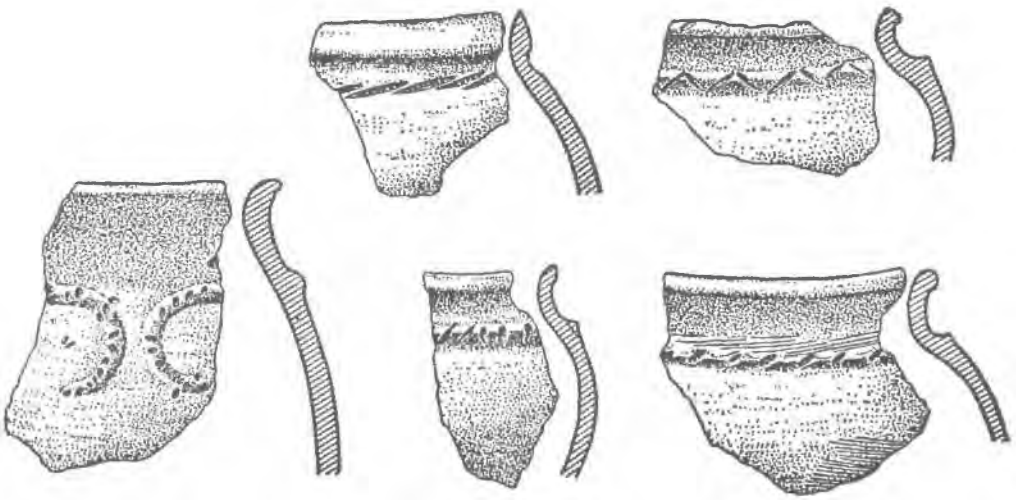


FIG. 405. Potsherds from the habitation site in Belozerskij Liman, district of Zaporozhie, lower Dnieper area. *After* Krivtsova-Grakova, 1955.

figures (fig. 404, *4*). The composition of the connected bird heads is reminiscent of late Urnfield (Urnfield V) birds, and would indicate contacts with central Europe.

We do not know yet what village and grave types go together with the above-mentioned hoards. In one case stratigraphy provided a clue: in the recently excavated habitation site at Ushkalka in the Dniester area the layer with finds of Sabatinivka type was overlaid by finds that are paralleled in the sites belonging to the so-called Bilozerskij Liman phase (oral communication from T. S. Passek). The type site for this end of the Bronze Age phase is located on the bank of Bilozerskij Liman near the village of Kamenka Dneprovska, lower Dnieper (Krivtsova-Grakova, 1949). The site yielded a large dwelling, semisubterranean, in contrast to local North Pontic above-ground houses built of stone and clay, and potsherds with incised ridges (fig. 405). The whole character of the village and finds is very close to that of the late Timber-grave sites in the Volga region.

E. WERE THE TIMBER-GRAVE PEOPLE THE PROTO-SCYTHIANS?

Who could have invaded the Cimmerian lands if not the Timber-grave people? The archaeological evidence offers no other alternative; the Timber-grave people must have been the early Scythians or proto-Scythians.

Recent archaeological literature no longer disputes the fact that the Scythians were descended from the Timber-grave people, but several decades ago the Iron Age Scythians were thought to have come from Asia and the Timber-grave people to have inhabited the north Pontic area throughout the Bronze Age. Hence, the conclusion followed quite logically that the Timber-grave people could be anything other than Scythians. The picture changed when it became clear that the Timber-grave people during the early second millennium B.C. were distributed mainly over the lower Volga area, that their sites did not reach further west than the Don River basin, and that along the Black Sea coasts lived another people, representatives of a fairly different culture.

Belief in the Asiatic origin of the Scythians came from interpretations of early historic records, chiefly Herodotus' account. Herodotus says that originally the Scythians lived in Asia; because of pressure from the Massagetae, they crossed the Araks River (the Volga?) and conquered the Cimmerians. Another section of Herodotus' work is based upon a poem by Aristeas Prokonessus who had traveled northeast of the Black Sea sometime in the middle of the seventh century B.C. Here, Herodotus mentions

that the Arimaspae, the "one-eyed people" who lived beyond the Urals, forced the Issedones out of their territory, the Issedones in turn pushed the Scythians from their homes, and the Scythians drove out the Cimmerians from the northern Pontic area (Herodotus, IV, p. 11). According to Diodorus of Sicily, who wrote in the first century B.C., the Scythians originally inhabited a small area along the Araks River but at an early date expanded down to the Black Sea ("the Ocean"), the Sea of Azov ("Lake Maeotis"), and the Don River ("Tanais"). This is in surprising agreement with the archaeological sources. Moreover, he tells a myth about the birth of "Scyth", a leader unsurpassed in fame by any other leader. The land was named Scythia after him. His heirs took possession of the whole north Pontic area from the Don River to Thrace, conquering the numerous tribes living in that territory (Diodorus Siculus, II, p. 43).

In ancient geography, Asia started east of the Don River. Hence, the statement that Scythians came "from Asia" does not contradict our thesis that the Timber-grave people were the early Scythians. Their distribution over the lower Volga basin fully accords with the "Asiatic" origin theory. The mention of the Scythians' eastern neighbors – the Massagetae, who lived east of the Caspian Sea and in the vicinity of the Aral Sea (carriers of the Tazabag' jab culture?), and the Issedones, who lived north of the Massagetae in the steppes of southern Siberia (Andronovians?) – also indicates that the Scythians were located in an area coinciding with the distribution of the Timber-grave culture.

From tribal names it can be seen that the Timber-grave people formed one tribal unit and were dependent on the movements of other tribes living in the steppes of western Kazakhstan and southern Siberia. It seems that their westward expansion was part of a "chain reaction". The steppe zone between China and the Ukraine was the arena of frequent migrations; sometimes they occurred on a local scale but often they covered enormous territory. The advent of the Scythians, their conquest of the north Pontic area and subsequently of the Caucasus, their appearance in the Near East and their expeditions into central Europe starting with the eighth century B.C. were preceded by a gradual yet forceful expansion westwards during the Bronze Age. These people, who in the eighth century B.C. caused the greatest upheaval in European prehistory since the expansions of the central European people, did not appear *ex vacuo*. They were the descendants of the Timber-grave people whom I call proto-Scythians in order to distinguish them from the Iron Age Scythians. The eighth century B.C. is the dividing line between two major periods of this steppe culture. Only in the beginning of the Iron Age did the Scythians dominate the whole north Pontic area; they entered central Europe and crossed the Caucasus. Only after the eighth century, through adaptation of art motifs from all possible sources – the forest peoples, the Caucasians, the Chinese, the Persians, and the Greeks – did the Scythians create the most notable feature of their culture, the decorative animal style.

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X

THE FAT'JANOVO BLOC IN CENTRAL RUSSIA: THE FAT'JANOVO PROPER, BALANOVO AND ABASHEVO COMPLEXES

Food-producers settled in central Russia about the end of the third millennium B.C., coming north from the western Ukraine, chiefly along the Dnieper route, but the date of their settling is not yet fixed by carbon-14 dates. Their origin, just as the origin of other central and northern European Kurgan or Corded Pottery groups, lies in the Eurasian Kurgan Pit-grave culture. The general traits of this new Chalcolithic culture in the forested zone between the East Baltic and central Russia have been given by the writer in the monograph on East European prehistory, 1956. Here I shall be concerned with the fate of this culture during the Bronze Age.

The immigrants occupied a large area. Their settlement took only a short time, as we see from the astonishing similarity of cultural elements, particularly ornamental motifs on pottery – herringbone patterns, horizontal cord impressions, and cord-impressed hanging triangles in the middle and upper Dnieper basin, the upper Volga basin, and in the eastern Baltic area as far as southwestern Finland. Some time after the arrival of the agriculturalists, a process of local differentiation began. In the East Baltic area (Estonia and southwestern Finland) the new culture was amalgamated with the local Comb-marked Pottery culture over a period of about 500 years. In central Russia around the eighteenth-sixteenth centuries B.C., two groups or variants became evident: one in the upper Volga basin of western central Russia, the Fat'janovo proper group, and the other in eastern central Russia, the Balanovo group. Both seem to have existed simultaneously throughout the period which corresponds with the Early Bronze Age in central Europe. The process of differentiation of the original culture will be clearer when the chronological sequence of the earliest food-producers in central Russia is presented in detail. The general term "Fat'janovo" covers both earlier and later assemblages.

The Fat'janovo group in the upper Volga area and the Balanovo group in the middle Volga basin are considered by some Russian scholars (cf. Bader, 1958, *see* references for the Turbino culture) as separate cultural entities for several reasons: variations in inventory, evidence that the Balanovo built larger cemeteries than the Fat'janovo, and, most important, different physical types (Akimova, 1955; Gerasimov, 1955). If we look at the evidence from a strictly chronological viewpoint, the materials from western and eastern central Russia are closely related. For example, similarities are evident between the finds from the cemetery of Vaulovo near Yaroslavl' on the upper Volga and finds from the cemetery of Balanovo west of Kazan on the middle Volga. The differences in physical type may be explained by the existence of a local sub-stratum. The food-producers, in spreading eastward, occupied the lands of the Pit-marked Pottery people of the so-called Balakhna group, belonging to the Sub-Laponoid physical type; and in spreading northwestward, they entered the territory of the East Baltic Crô-Magnons, the Comb-marked Pottery people.

In the description below I shall treat Fat'janovo and Balanovo assemblages not as entirely separate groups, but as one cultural bloc. I am using "Fat'janovo" as a label for the whole forest zone of central Russia and for the whole period in which we find traces of this gradually developing culture, comprising Early Bronze Age Fat'janovo proper in the upper Volga area, Balanovo in the middle Volga basin, and the Middle Bronze Age Abashevo finds.

The basins of the upper Volga, the Oka, the Sura, the lower Vjatka, the lower Kama, and the lower



FIG. 406. Distribution of the Fat'janovo and Balanovo groups during the Early Bronze Age (crosses indicate the more important sites).

The Middle Bronze Age Abashevo sites are indicated by black triangles:

1. Ogub habitation site near Malojaroslavl'
2. Tjunino habitation site;
3. L. Pleshcheevo habitation site
4. R. Shuj habitation site
5. Zemskovo near Kasimov
6. Abashevo cemetery, Pikshiki cemetery, Taush-Kosy cemetery, Katergino cemetery, Algashi cemetery, Tjurlema cemetery and habitation sites, Dosaevo cemetery, Tebi-Kosy cemetery, Vasjukovo cemetery, Beshbatmanskoe habitation site, Almenevskoe habitation site, Malo-Achasyrskoe habitation site, Khodjashevskoe habitation site
7. Balanbash habitation site
8. Urnjak habitation site
9. Akhnerovo habitation site
10. Salikhovo habitation site
11. Malyj Kizyl habitation site
12. Kuseevo find
13. Turunovo group of kurgans
14. Troitsk group of kurgans
15. Prokop'evo group of kurgans;
16. Sretenka group of kurgans
17. Semejka group of kurgans
18. Tapsher group of kurgans
19. Vilial group of kurgans
20. Nartasy group of kurgans

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Belaja are in a more favorable climatic zone than the northern regions of Russia; the sites form a long and narrow horizontal belt (fig. 406) in this zone. Besides farming and some stockbreeding, Fat'janovians occupied themselves extensively with hunting and fishing.

In northeastern Europe this culture was an eastern branch of a large cultural bloc spread between the East Baltic area and the middle Volga. Relations between the Fat'janovians and the culture in the upper Dnieper and East Baltic areas were close. Hence we may assume that before local differentiation occurred, the area between the Vistula River on the south, southwestern Finland on the north, and central Russia on the east belonged to people of related cultures, who very probably spoke much the same Indo-European language. Fat'janovians could have spoken a language related to the Proto-Baltic

since there is a list of words in Mordvinian, Mari, Mansi, Udmurtian and Komi-Zyrian which have parallels in Lithuanian and Lettish (Serebrennikov, 1957).

Fat'janovo is mainly an Early and Middle Bronze Age culture; in the Late Bronze Age there is no further trace of it in central Russia except the River Sura area. As the distribution shows, the Fat'janovians formed a wedge along the Volga between the Turbino and the Timber-grave peoples, and in fact, shared the same territory with the Turbino people, the carriers of the southern Turbino culture, the Volosovo and the Sejma.

During the Early Bronze Age they competed with the Volosovo hunters and fishers in the lower Oka and Kljazma river basins. At the same time the Timber-grave intruders appeared in the Oka area and may have reached the upper Volga. Timber-grave pressure from the south may have been the cause of the expansion further eastward along the Belaja River of one of the Fat'janovian tribe (Abashevians) at the beginning of the Middle Bronze Age. However, scattered as they were in a narrow belt, they were doomed ultimately to disappear because of constantly increasing Timber-grave and Turbino power.

1. *The Early Bronze Age, ca. 1800 B.C. – ca. 1450 B.C.*

a. *The upper Volga group or Fat'janovo proper*

The assemblage called Fat'janovo after the cemetery excavated at Fat'janovo near Yaroslavl' on the upper Volga (Spitsyn, 1903), is typified by stone battle-axes with drooping blades, trapezoidal flint celts, flint knives, heart-shaped arrowheads, globular, geometrically decorated pots, and copper spirals found in graves with contracted skeletons or in habitation sites on bluffs along the rivers. Copper artifacts appeared in abundance after the introduction of metallurgy into central Russia. This new phase is best represented by the Vaulovo cemetery near Yaroslavl' on the upper Volga (Krajnov, 1941). The 13 graves of this cemetery, like the graves of the Balanovo cemetery, yielded copper axes, awls, finger-rings, bracelets, and spirals. The Vaulovo cemetery may have been constructed soon after the Fat'janovo, but the general similarities of stone and ceramic finds from both cemeteries indicate their probable contemporaneity.

The cuff-shaped bracelets (fig. 407; pl. 100, *7*) which have been found in several cemeteries, Mytishchi near Ivanovo and Voroksk near Yaroslavl' (Krajnov, 1941; Bader, 1959) are remarkable. Their form is reminiscent of early Únětice bracelets. Because of this relationship in form, many scholars have regarded them as imports from central Europe and as very useful for dating the Fat'janovo group (Brjusov, 1952, p. 65, *see* references for the Turbino culture; Bader, 1959). The question of their origin is, however, more complicated. First, there are no identical bracelets in the Únětice culture. Second, the Fat'janovo bracelets are decorated in a local style; in addition to horizontal lines, there is a net pattern along the sides (pl. 100, *7*) and a fir-tree motif, designs also found on pottery and on bone objects. They are not imports, but rather imitations of Únětice bracelets. Commercial contacts with or inspiration from the Únětician metallurgical centers are also indicated by a basket-shaped copper earring of early Únětician type found in a grave of the cemetery of Dikarikha located on a promontory of Lake Pleshcheevo half way between Moscow and Yaroslavl' (Nikitin, 1963).

The amber beads in the graves of Byelo-Russia can be used as chronological indicators. The cemetery of Strelica on the river Sozh, consisting of cremation graves, is likewise important here. It lies near a habitation site belonging to the Comb-marked Pottery culture. Typical Fat'janovo stone axes with drooping blades, trapezoidal flint celts, and globular pots, one decorated with a fir-tree motif, were found in the graves. In addition to these usual finds, lens-shaped amber beads, a copper or bronze bracelet (unfortunately badly preserved), and a copper knife (9.4 cm long, 2.1 cm wide) were brought to light archaeological museum of Minsk). In the upper Dnieper basin, district of Homel', in the barrow



FIG. 407. Skeleton equipped with a cuff-shaped bracelet, pots, a flint knife and celt. Grave No. 1 of the cemetery of Mytishchi, district of Ivanovo. *After* Bader, 1959.

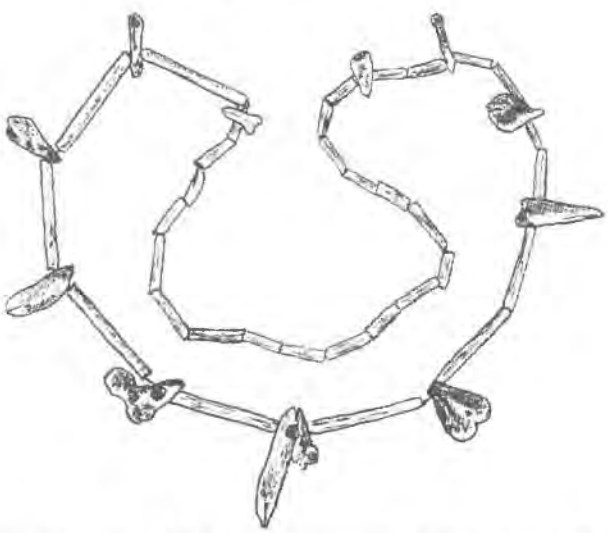


FIG. 408. Necklace made of bird bones interspersed with incisors of wild animals. The cemetery of Vaulovo near Yaroslavl'. *After* Krajnov, 1941.

cemetery of Moshka, one grave yielded an amber ring-pendant, found in association with copper and stone shaft-hole axes of Fat'janovo type, a copper spearhead, double-spiral pendants, flint arrowheads and knives, stone polisher, and pottery belonging to the upper Dnieper variant (Artemenko, 1964, fig. 11). Amber beads and the pendant have close parallels in Lithuania (pl. 5) and copper double-spiral pendants – in the early Únětice assemblages.

Inhumation rites prevailed on the upper Volga. From better-preserved graves, as in the cemetery of Vaulovo, it is evident that hut-like constructions were built in rectangular graves and roofed with logs or planks. The cemeteries revealed evidence of religious rituals. Bones of domestic animals, particularly

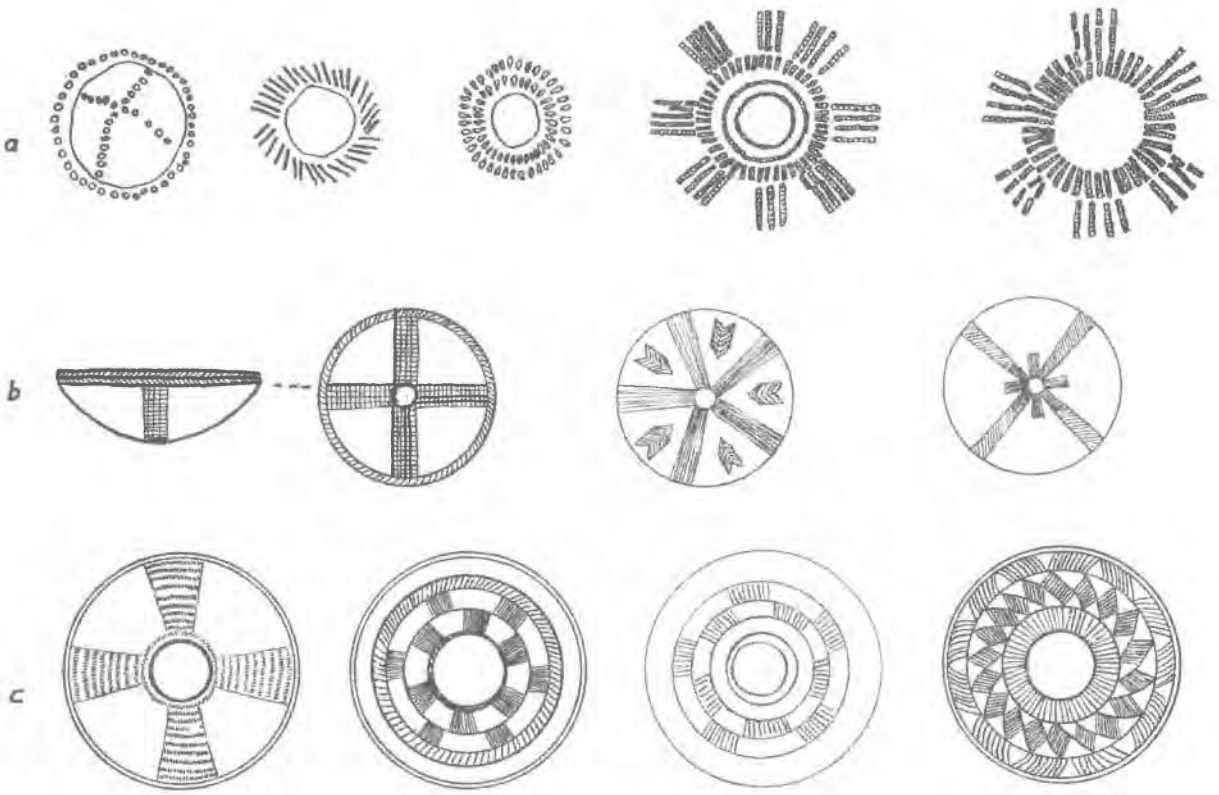


FIG. 409. Sun symbols engraved and stamped on pottery. *a*, on the bases of pots from the cemetery of Vaulovo near Yaroslavl'; *b*, decoration of dishes with concavity in the middle; *c*, ornaments viewed from above. *b*, *c*, Balanovo cemetery. *After* Krajnov, 1941 (*a*), Akimova, 1947, and Bader, 1940 (*b*, *c*).

those of sheep, and bear and boar incisors, some ornamented, were found in graves, as were necklaces made of tubular bird bones interspersed with the incisors of wild animals (fig. 408). In several cases a separate grave for a sheep or goat and dog appeared, the animals being buried with the same rite and equipment as humans. In the Vaulovo cemetery, a grave containing bear's bones was discovered (Krajnov, 1941, p. 116), and small bones of animals were found in pots. Charcoal and ashes, red ochre, tinder, and pieces of flint were laid in or around the bottoms of the pots. Tinder and red ochre were frequently laid in pots. On the outside surface of the bottom of the pot, there was either a round concavity or a concavity with a radiating sun motif around it (fig. 409 *a*, *b*). The design over the neck and shoulders of the pots was composed of incised or impressed rhombs, zigzags, crosshatched lines, vertical or diagonal striations, and circles (figs. 409 *c* and 410).

Timber-grave expansion from the south somewhere around 1800 B.C. disturbed the Fat'janovians in the Oka and upper Volga area. Early classical Timber-grave sites or influence are found as far north



FIG. 410. Decorative motifs on pots from the Vaulovo cemetery near Yaroslavl'. *After* Krajnov, 1941.

as the district of Kostroma. In the Fat'janovian cemetery area at Govjadinovo a cultural layer 60-70 cm beneath the surface of a habitation site yielded Pozdnjakovo pottery, the Timber-grave type in the Oka area (Smirnov, 1947). Fat'janovian contemporaneity and contact with the Volosovo people of central Russia is shown not only by Fat'janovo influence on Volosovo pottery and some similarities in stone tools, but also by Fat'janovo or Balanovo graves found in the Volosovo settlement area. A peculiar case was discovered in the Volosovo site of Nikolo-Perevoz on the bank of the Dubna River east of Moscow, where a collective burial of nine persons equipped with Fat'janovo pots, axes, 9 flint arrowheads (3 of the Volosovo type), and a spearhead were unearthed. These Fat'janovians might have been killed by the Volosovo people (Raushenbakh, 1960).

b. *The Middle Volga group or Balanovo*

This group bears the name "Balanovo" after a cemetery found on a high hill about 12 km west of the middle Volga, near the village of Balanovo west of Kazan, between Svjazhsk and Tsivilsk. The cemetery was excavated by Tikhonov in 1933 and Bader in 1934-37; over 100 graves were uncovered, many of which were left unexcavated and many of which had already been destroyed (Bader, 1940, 1950b; Akimova, 1947b). There are also several other well-excavated cemeteries and hilltop settlements, concentrated in Chuvashia and Mordvinia (Stepanov, 1950, 1951, 1954, 1958). On the west this culture extended to the upper Volga, and on the east to the Vjatka, lower Kama, and lower Belaja basins (fig. 406).

The Balanovo group developed into a true metal culture. Copper axes, U-socketed spearheads, awls, spiral rings, and tubes of copper plate appeared in abundance (fig. 411), while the stone and ceramic

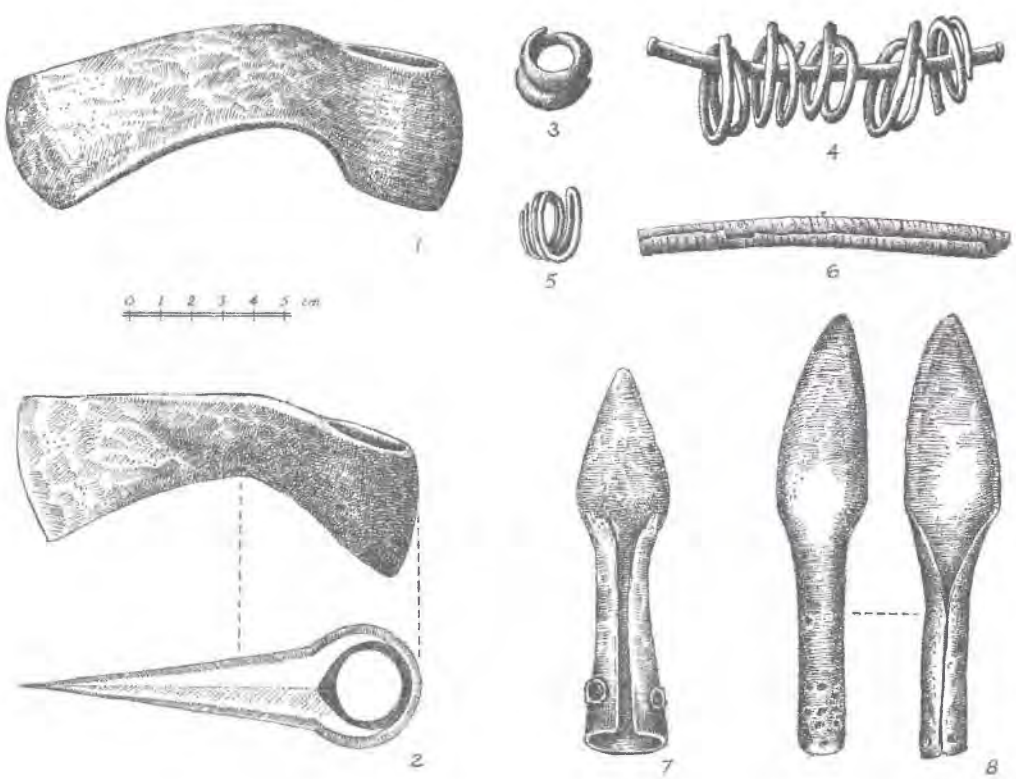


FIG. 411. Copper artifacts from the Balanovo sites. **1, 2,** axes; **3, 5,** hair-rings; **4,** spirals wound on a bar; **6,** folded copper plate; **7, 8,** spearheads. **1-7,** Balanovo cemetery; **8,** Osh-Pando hilltop site. *After* Bader, 1950 and 1958.

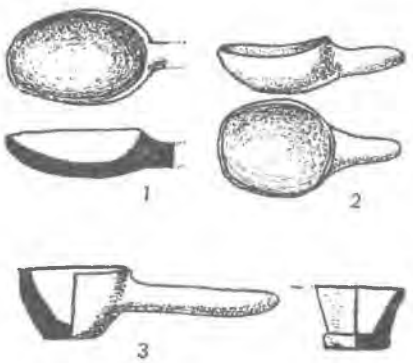


FIG. 412. Ladles and cup (crucibles?) from the cemetery of Balanovo. *After* Akimova, 1947.

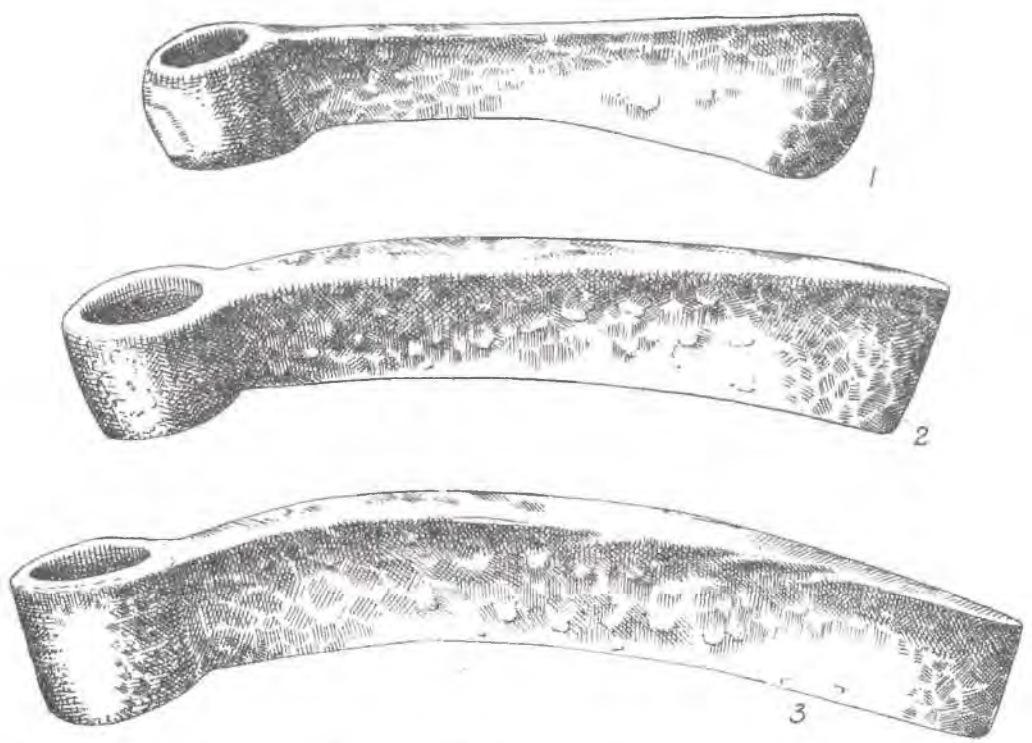


FIG. 413. Copper axes from the district of Kazan. **1,** Moshkeevo near Svjazhsk, district of Kazan; **2, 3,** district of Kazan. From the collection of Zausailov, Kansallismuseo, Helsinki. Scale approx. 2/3.

industry, burial rites, religion, and art retained their Neolithic-Chalcolithic traits practically unchanged.

The Volga route connecting central and southern Russia played a decisive role in the introduction of metallurgy. Copper spirals, beads, and awls have analogues in the northern Pontic and the lower Volga area. Well-fired black ladles, some with very long handles, and simple undecorated cups with thick sides have been found in graves, probably serving as crucibles for casting (fig. 412). Spectroanalysis of three spirals and two awls from the Balanovo cemetery, done by A. G. Popova in 1959, has shown that all five objects were made of copper (Bader, 1950a, p. 63). The Balanovians very likely imported copper ore from the southern Urals.

Similarities of copper artifacts with early and classical Timber-grave types in southern Russia are the best chronological indicators for the Balanovo assemblage. Balanovo axes resemble early classical

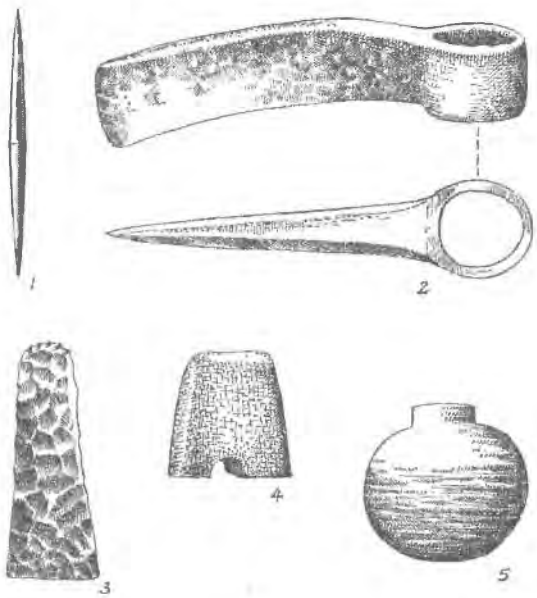


FIG. 414. Inventory from the grave at Verkh-Sava near Kueda, district of Perm.
1, copper awl; **2**, copper axe; **3**, flint celt; **4**, fragment of a stone axe; **5**, pot.
Scale: 3/4; pot approx. 1/5. *After* Bader, 1957.

Timber-grave axes with heavy sockets and narrow blades (cf. fig. 6, *2*), and a number of related isolated specimens have turned up in the area of the confluence of the Volga and the Kama (fig. 413). In the grave of Verkh-Sava, west of Sarapul, in the district of Perm, the same type of axe was found together with a fragment of a perforated stone axe, a flint celt, a copper awl, and a globular pot (fig. 414). This site is the farthest east and north. Balanovo axes are not imports: their great numbers show that they are very probably local products, and their similarity in form with south Russian and south Uralian axes indicates commerical relations. They belong to the early type of copper axes, whose general characteristic is massiveness of form; later axes were more gracile. The Balanovo copper axes (fig. 411, *1*, *2*) also resemble somewhat Transylvanian ones: *Compare* the axes reproduced in figure 12, *2* and in figure 13, *4*, *5*, which may date at *ca.* eighteenth century B.C.

Balanovo copper objects seem to be approximately contemporaneous with early (Poltavka) and early classical (Kievka) Timber-grave artifacts. In northern Europe this corresponds with the late Corded and in central Europe with early Unětice period. In the next chapter we shall see that the Balanovians were contemporaneous with the hunter-fishers of the so-called Volosovo group which precedes the Sejma phase.

The Balanovo people lived on hilltops, fortified by ramparts and trenches (fig. 415). Their cemeteries were also on hills. The cattle, horse, sheep and swine bones found in habitation sites and in graves, and the rubbing stones in women's graves of the Balanovo cemetery, indicate that they practiced both animal husbandry and agriculture. They collected river mollusks in abundance (these appear both in habitation sites and in graves), and hunted forest fauna extensively, the brown bear, boar, beaver, and various rodents.

For burial a rectangular pit was dug, about 2.0 by 1.5 meters, and 1.5 meters deep. According to Bader, the graves of rich and important persons were dug the deepest. Some graves were over 2 m deep; they belonged to men and were equipped with copper weapons and perforated stone axes. Within the grave-pit but above the bottom a rectangular hut was constructed which had vertical walls of plaited twigs (?) with four supporting posts about 60 cm high in the corners. The hut contours were usually

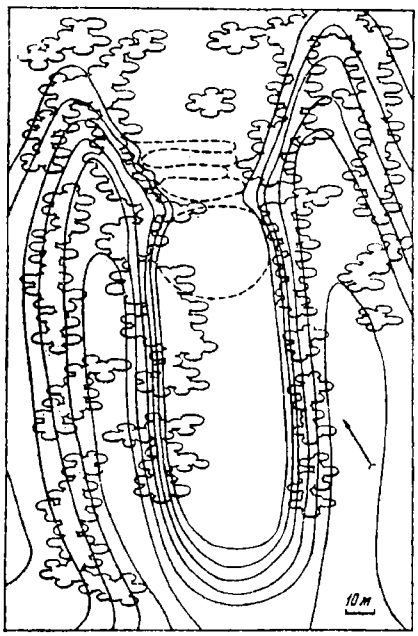


FIG. 415. Plan of a hill-top site. Ashna Pando, at the village of Guljushevo, district of Uljanovsk, on the upper Sura. Disconnected line: ramparts. *After* Stepanov, 1958.

well defined (cf. Bader, 1950b, fig. 1). This type of grave architecture was found mostly in the Vaulovo and Balanovo cemeteries. After burial the hut was covered with planks and earth.

The dead were buried in a contracted position, men on their right side, women on their left. Almost every grave had one to three pots, but the women's graves had more pots than the men's,so metimes as many as five. A burnisher was found in a woman's grave, indicating that pottery-making was a female occupation. Wood or bone combs were only found in women's graves. Copper axes and spearheads, as well as perforated stone axes and wrist-guards of bone, and a specific type of pot – black, thin-walled and burnished, the neck decorated with minute stamped ornamentation, were typical furnishings of male graves. Flint celts, knives, and copper or bone ornaments were found in all graves. Children's graves were distinguished by miniature grave goods, models of stone axes in clay, small flint celts, small pots and dishes, clay toys, and miniature clay wheels (fig. 416, *4*).

Statistics from the Balanovo cemetery have shown that 37 per cent of all graves were multiple, containing up to four or even five skeletons.

Pots were globular in form with cylindrical necks; and of various sizes, usually between 5 and 30 cm high. Some were made roughly, others with extraordinary care in firing and burnishing. They were thin-walled, black inside, and reddish gray or red outside. Ornamentation was incised and stamped around the neck and shoulders, around the bottom, or over the whole surface and consisted of many motifs, the most frequent being zigzag bands or groups of vertical or diagonal incisings (fig. 416, *5-8*). These motifs constituted a total pattern which probably was born of a solar symbolism (figs. 409, *c*; 416, *8*).

The stone industry is represented by numerous trapezoidal flint celts, perforated stone axes (battle-axes), long flint knives, scrapers, and rhomboid flint arrowheads. Burnishers, borers, combs, and other tools were made of domestic animal bones. Of note among the grave goods in the Balanovo cemetery were the archer's wrist guards of bone (fig. 417), the closest parallel to which known to the author is among the finds of the Laibach-Ljubljana peat-bog in northwestern Yugoslavia (Munro, 1890, p. 173, fig. 42:8).

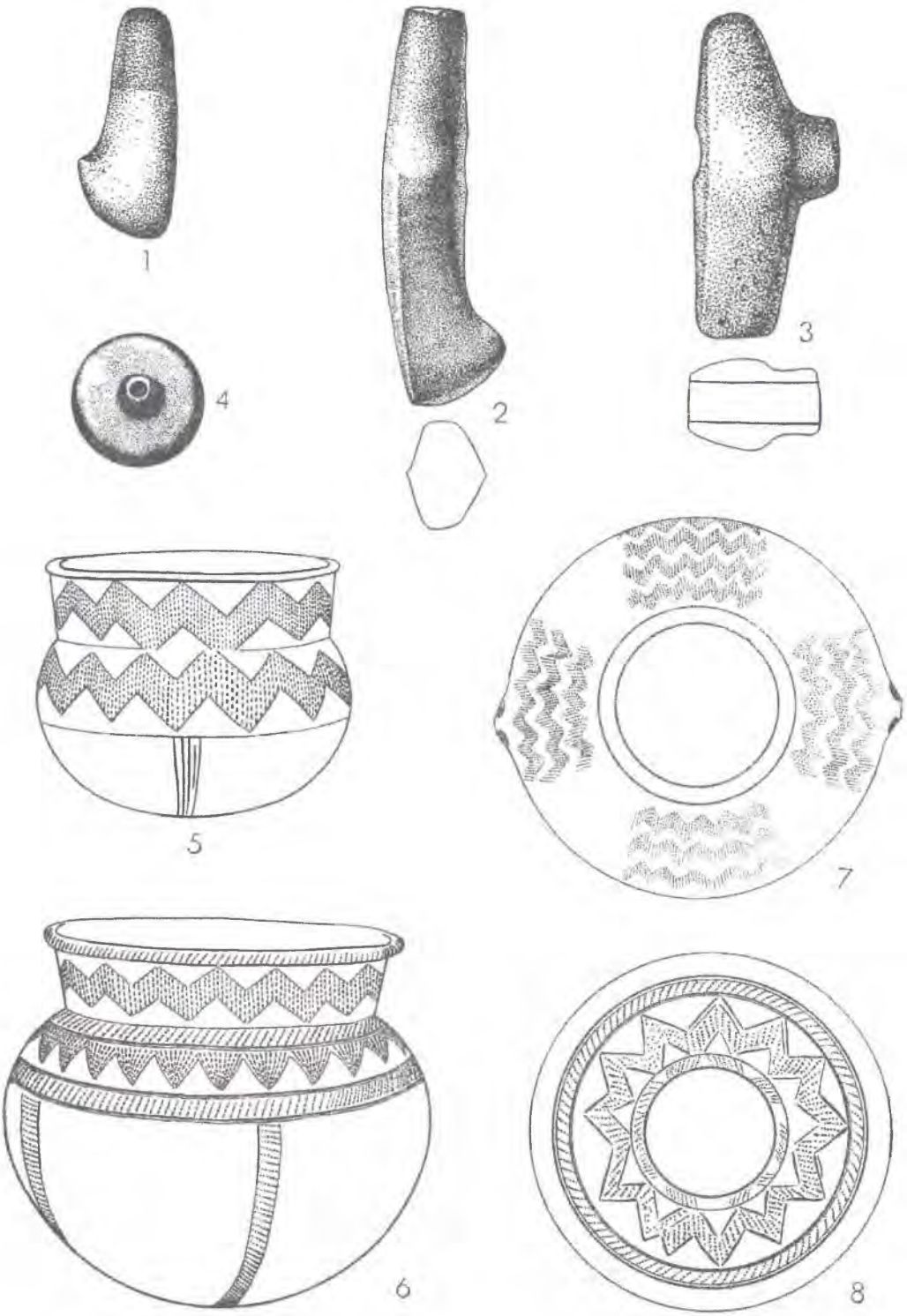


FIG. 416. **1-3**, stone axes; **4**, miniature clay wheel; **5-8**, pots (**7, 8**, viewed from top) from the Early Bronze Age period of the Balanovo group. **1, 4, 6-8**, cemetery of Balanovo; **2**, B. Tojaba; **3**, Kaby-Kopry; **5**, Atli Kasy, district of Tetjushi. Scale approx. 1/2. *After* Bader, 1958.

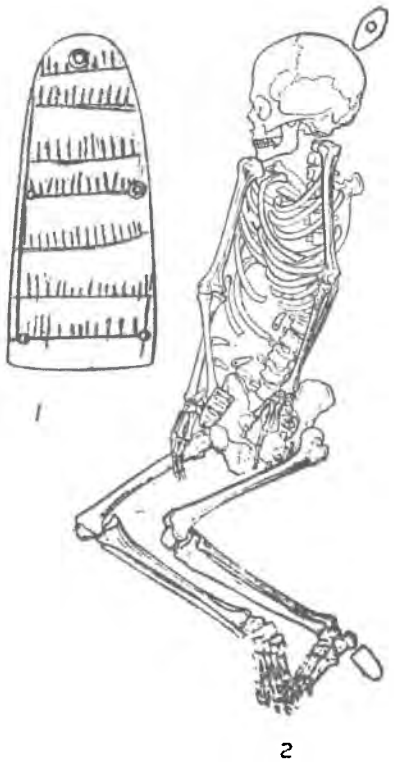


FIG. 417. **1,** wrist-guard; and **2,** grave No. 3 of the cemetery of Balanovo in which wrist-guard was found. Stone axe behind the head, perforated incisor teeth on the belly. Scale of **1** approx. 2/3. *After* Bader, 1940.

Of the great number of Balanovo skeletons, only 40 could be used for physical examination; Akimova has described 24 (1947) and Gerasimov 18 (1955). According to Gerasimov the physical type of the Balanovo man is basically Mediterranean but with a certain admixture of traits that are also to be found among the sub-neolithic people of central Russia. The "half-breed" skulls, divided by Gerasimov into two groups, are: a type mixed with traits of local sub-Neolithic people from the Volga-Oka area (the Balakhna group) and a type mixed with sub-Laponoid elements from the Oka area. Of the 18 skulls measured by Gerasimov, 11 were found to be "Mediterranean", five "half-breed" with Balakhna elements, and two "half-breed" with sub-Laponoid elements. The intermixing of population, according to Gerasimov's estimates, must have lasted for a considerable length of time; the half-breed types presumably represent the first mixed generation.

The physiological studies of Akimova and Gerasimov agree with archaeological data which suggest that the Balanovians were not the first people to invade central Russia; they must have been the heirs of the Kurgan people who settled this area at latest in the last centuries of the third millennium B.C.

2. *The Middle Bronze Age, ca. 1450 B.C. – ca. 1250 B.C.*

a. *Late Balanovo in the River Sura area*

Recent discoveries of stratified Balanovo sites have proved that Balanovo persisted into the Middle Bronze Age and later. A stratified site at Vasil'surskoe on a high bank or River Sura near its confluence with the Volga yielded two distinct Balanovo layers, both including later materials than those of the Balanovo cemetery. In addition, the upper layer of the same site towards its end contained the latest type

of Balanovo sequence. Hence, on the basis of the stratigraphy of Vasil'surskoe it became possible to divide the gamut of the Balanovo sequence into four phases: Balanovo I-IV (Khalikov and Khalikova, 1963).

Balanovo I was described above and it was shown that it is roughly coeval with the Únětice period in central Europe. Balanovo II-IV conservatively continued the same cultural elements without any recognizable gaps and therefore should be placed in the centuries following the Early Bronze Age. Balanovo II (layer II in the site of Vasil'surskoe) yielded flint arrowheads and a copper-bronze shaft-hole axe of Sjema type which allow us to place the phase in the fourteenth century B.C. The next two phases may belong to the thirteenth and twelfth centuries B.C., but except the stratigraphy and gradual evolution of artifacts there is no other means available for the establishment of their chronology.

Late Balanovo sites are found only in the Sura basin. To Balanovo II belong the layer II of Vasil'surskoe and the hillfort of Atli Kasy, also located on a high bank of Sura (Tret'jakov, 1948). Small villages consisting of a group of above-ground rectangular houses of a log cabin type with a porch were fortified with high earthen ramparts from the inland side. Heavy fortifications may reflect an approaching danger for the Balanovians. In fact, at the same time in the area of the Volga and Vjatka confluence, the Balanovians must have been threatened or conquered by the Turbino (Sejma) people. In this area a hybrid cultural variant is found with the predominance of Turbino elements (Khalikov has labeled it "Chirkovsko-Sejma" complex: Khalikov, 1960).

Balanovo III in addition to the upper layer of the Vasil'surskoe site is well documented in the hill-forts Osh-Pando and Oshna-Pando (Stepanov, 1951). The house and village types remained basically the same as during Balanovo II. Inhumation rites in barrows with occasional cremation graves persisted. Pots still retained their round bottoms, but pots were less carefully decorated and polished. In Balanovo IV barrows with cremation graves appeared. Pottery combined Timber-grave and Turbino decorative elements, and flat bases replaced partially the traditional rounded bottoms. Chevron, triangle and rhomb motifs disappeared; the herringbone, small bosses, cord impressions, and channelling took their place. Balanovo IV probably was the end of the Balanovo tribe which for many centuries fought with its neighbors until it was gradually assimilated.

b. *The Abashevo complex*

The name "Abashevo" is derived from the cemetery discovered in 1925 near the village of Abashevo in the northern part of the Chuvashian ASSR, 20 km southeast of the town of Cheboksary (Smolin, 1926a, 1926b).

Abashevo sites are concentrated in the area west and north of Kazan in eastern Russia (fig. 406). In the southern Urals, systematic excavations of several habitation sites have been carried out. The prominent sites of Malyj Kizyl and Balanbash were excavated by K. V. Sal'nikov (Sal'nikov, 1952c, 1954). Barrow cemeteries have been found in Chuvashia west of Kazan (Abashevo, Taush-Kosy, Katergino, Pikshiki, and others), excavated between 1925 and 1958; in 1956-1958, the Mari Archaeological Expedition uncovered many barrows between the Volga and the lower Vjatka (Khalikov, 1959, 1961; Efimenko and Tret'jakov, 1961; Merpert, 1961).

Comparisons of ornaments (fig. 71) have shown that the Abashevo period is approximately contemporary with the late classical Timber-grave culture (the Pokrovsk phase), with the Alekseevskoe phase (also called "Fedorovo") of the Andronovo culture east of the southern Urals (fig. 70), and with the Galich hoard in northern Russia (figs. 73, 74). This is demonstrated by the distribution of broad and short copper daggers, necklaces with a double-spiral pendant in the middle, hollow bracelets with tapered ends, spiral hair-rings with bulging ends, and other ornaments. The Abashevo assemblage is also approximately contemporary with the Sejma cemetery on the Volga-Oka confluence, for in both, related

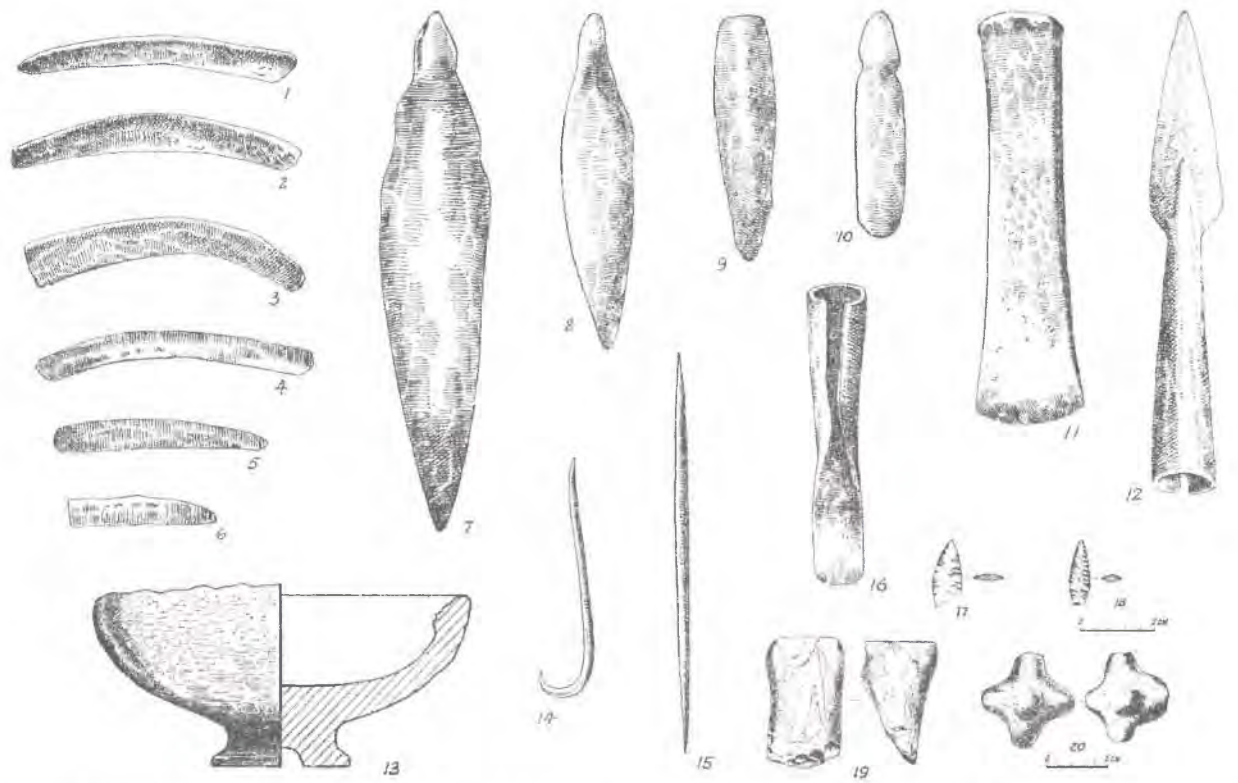


FIG. 418. Abashevo tools and weapons. **1-6,** copper sickles; **7-10,** copper dagger or knife blades; **11,** copper flat axe; **12,** copper spearhead; **13,** crucible; **14,** copper fishhook; **15,** copper awl; **16,** copper chisel; **17, 18,** flint arrowheads; **19,** stone hoe; **20,** stone model for a macehead. **1-12, 14-20,** M. Kizyl site; **13,** Balanbash site. *After* Bortvin, 1928 **(1-12, 14-16)** and Sal'nikov, 1952 **(13, 17-20).**

copper shaft-hole axes appear. Abashevo proper (the Abashevo cemetery and its close relatives) should thus be chronologically placed with Sejma and Alekseevskoe, which I have dated *ca.* 1400 – ca. 1300 B.C. The rather small number of stratified sites prohibits definite formulation of the Abashevo phases which earlier and later variants in pottery show to have existed. Since we know, however, that the period is broader than Abashevo proper, I am placing it between 1500 and 1300 B.C.

Cemeteries usually are found near small rivers or on plateaus between two rivers; habitation sites were situated on river terraces. The site at Malyj Kizyl excavated in 1948-1950 was on the left bank of the Malyj Kizyl River near its confluence with the Ural River; the Balanbash site, excavated in 1939 and 1951, was on a steep slope of the Belaja River bank. These two habitation sites yielded the basic information for the Abashevo assemblage on houses, fire-places, and metallurgy, pottery, and domestic animals.

One building at Malyj Kizyl, the only dwelling we have for the Abashevo period, occupied about 100 square meters parallel to the riverbank. It was an elongated rectangle, somewhat sunk in the ground and apparently had an assymetrical peaked roof supported by a longitudinal row of posts, its sides resting on the ground (Sal'nikov, 1952c, pp. 50 ff.).

In both habitation sites abundant agricultural tools – fragments of saddle-querns, rubbing stones, and pestles – were found. At Malyj Kizyl a stone implement believed to be a hoe (fig. 418, *19*) was found. Copper sickles from Balanbash and Kizyl (fig. 418, *1-6*) and from many other sites are also evidence of farming activities. Bones of domestic animals – cattle, sheep, goats, swine, and horses – were found. Bone, flint, and copper arrowheads as well as fishhooks, point to hunting and fishing. The big rivers, rich in fish, where settlements were found, and the deciduous and coniferous forests nearby were propitious for both activities.

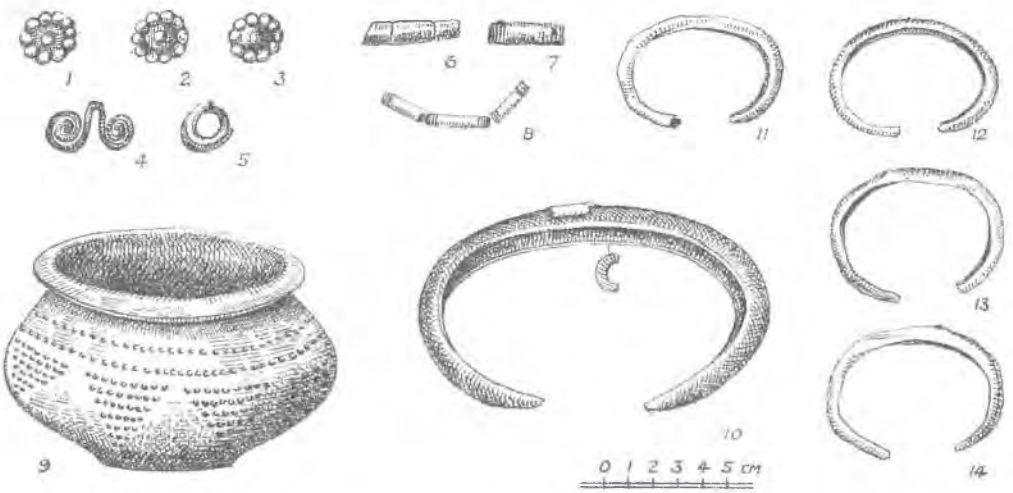


FIG. 419. Abashevo pot and ornaments from the M. Kizyl site. **1-3,** garnitures of copper covered with silver plating; **4,** copper pendant; **5,** spiral ring; **6-8,** bugles made of foliate copper or silver leaf; **9,** pot; **10,** copper necklace plated with silver; **11-14,** copper bracelets. *After* Bortvin, 1928.

The fairly large amount of ore and slag found in habitation areas indicates that metallurgy was practiced locally. At Balanbash many crucible fragments were discovered, their sides covered with slag: several crucibles had a small groove through which the metal was poured after melting. At Malyj Kizyl a fragment of a clay insert for a mold was discovered, and also a model for a soft-stone macehead (fig. 418, *20*). Copper was commonly used, but at Malyj Kizyl a lead bracelet-like ornament was found (Sal'nikov, 1952a p. 58). Spectroanalysis of metal artifacts has not as yet been undertaken.

The southern Ural metallurgical center produced many types of ornaments and tools. One of the most complete collections of Abashevo metal artifacts comprising a considerable number of metal ornaments, tools, small pots, and stones, was found at the edge of the habitation site at Malyj Kizyl during earthwork constructions in 1924 to strenghten the banks of the Kizyl River. The finds were not all preserved; stones and pots had been thrown back into the earth and the axes converted by the workers for their own use. The artifacts did not necessarily belong to a hoard; they may well have come from graves (Bortvin, 1928, p. 125). The preserved objects were the following: 11 concave bracelets with tapered ends, probably cast, made of yellow copper (fig. 419, *11-14*); three necklaces, concave on the inner side, with thin silver foil (fig. 419, *10*); two rings, one made of round copper wire in a triple coil (fig. 419, *5*), the other of flat tin in the form of a coil; one double-spiral pendant, made of round wire about 1.0 mm in diameter (fig. 419, *4*); three ornaments in the shape of rosettes with ten petals surrounding a projection in the center (the three upper petals were connected in such a way as to form two small holes for sewing, fig. 419; *1-3*); tubes made of foliate copper or silver-leaf forming cylinders with four rows of embossed ridges at the ends (fig. 419, *7, 8*); two copper daggers or knives with broad blades (fig. 418, *7-10*) and characteristic indentations in the haft, one of which was 20 cm long; a flat chisel, 14.5 cm long (fig. 418, *11*); one spearhead (fig. 418, *12*) with a slit along one side of the socket, ornamented with beaten dots in two lines which met at the point of the spearhead; one U-socketed gouge, 10.5 cm in length (fig. 418, *16*), working end of which was curved; one fishhook of massive square wire (fig. 418, *14*); one awl, rhomboid in cross-section with both ends sharpened, 14.5 cm in length (fig. 418, 15); a small black pot, 6.5 cm high, decorated with two horizontal rows of hanging triangles around the shoulders and with a six-pointed star on the base, done in discontinuous incised lines (fig. 419, *9*).

Other Abashevo artifacts are copper shaft-hole axes, copper arrowheads, hemispherical plaques with one or two perforations, copper or silver spiral hair-rings, annular and hegmented cylindrical copper beads, and slate pendants. The minute ornamentation achieved by sewing thin copper wire and copper

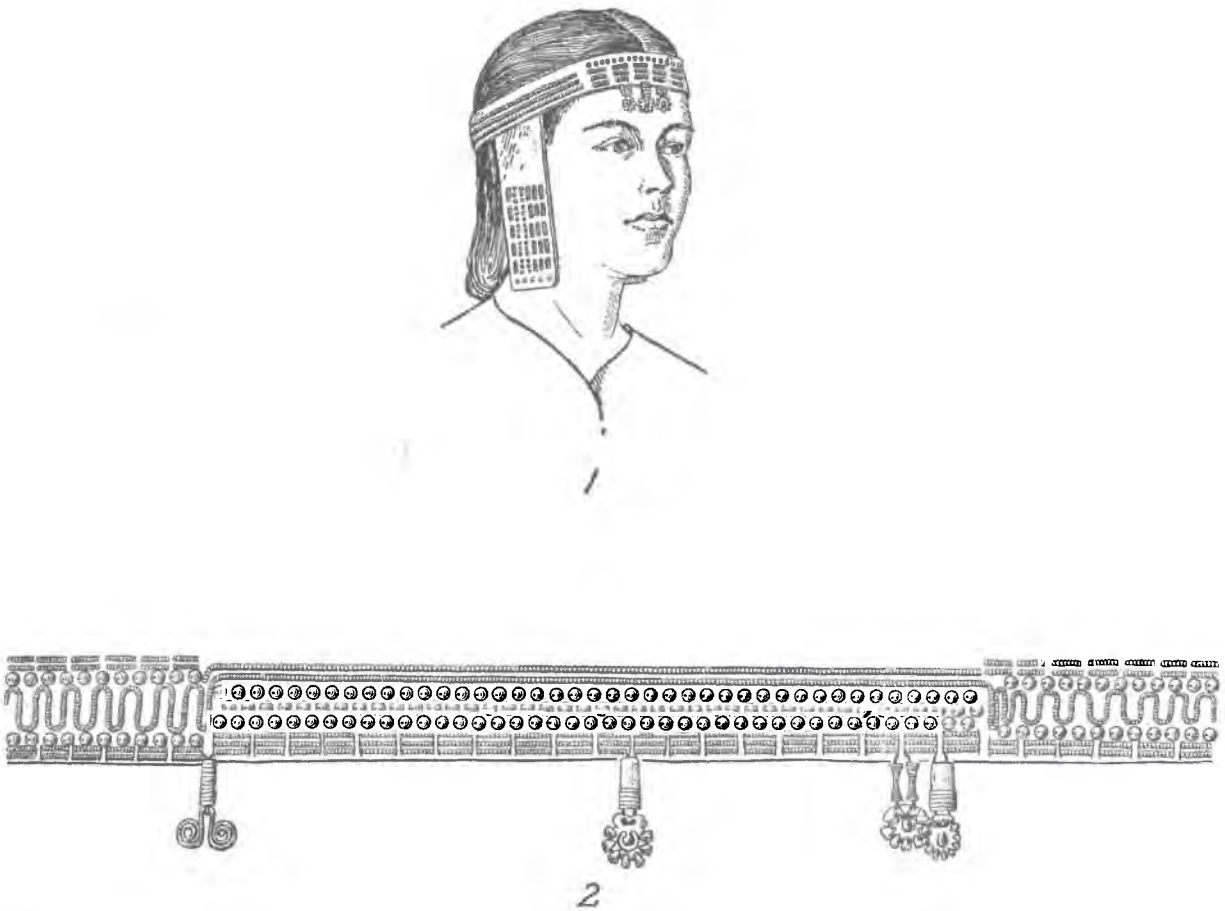


FIG. 420. Headgear of the Abashevo woman: copper spirals and plates sewn on a leather belt. **1,** reconstruction; **2,** outstretched ornament. From the cemetery at Vilovatovo, Mari SSR, lower Vjatka area. *After* Khalikov, 1961.

foil on leather shows astonishing craftsmanship. The fragments which were preserved from pieces of headgear, sleeves and shoulder trappings of leather are richly decorated with bands of horizontal or wavy lines of tiny copper rings, spirals, hemispheres, solid or disconnected, rosette motifs, and various combinations of horizontal and vertical bands (fig. 420). Finds of this nature give an idea of the taste of the Abashevo people and of the attention paid to the beauty of costume and to women's appearance.

The form and ornamentation of pottery are widely varied and show both great skill and taste. The clay of which the pots were made was tempered with sand or with crushed shells. The surface was well smoothed and sometimes burnished. The most common Abashevo pot was a wide-mouthed vessel, sometimes low, sometimes tall and tulip-shaped (figs. 421-423), the upper part usually widened and the rim bent outward. More sophisticated vessels had a biconical body with the rim bent outward (figs. 423, *4-7*). A triangle, stamped or incised, was one of the frequent motifs.

The Abashevo people buried their dead in pits under very low, circular barrows, one or several graves in each; the barrow was surrounded by a rectangular, circular, or elliptical timber fence built of vertical logs. This peculiar fencing of graves was particularly noticed during the 1958 excavations by N. Ja. Merpert, of the cemetery at the village of Pikshiki, district of Cheboksary in Chuvashia, where every grave or group of graves had a different type of fencing (figs. 424 and 425). In some barrows were found traces of a number of hearths (as in kurgan No. 14; fig. 425, *1*). Close to the graves inside or outside the fence stood a massive post which, according to the excavator, served as a tombstone. The reconstruction of wooden tombstones and grave fences is shown in plate 101: each grave was a solid

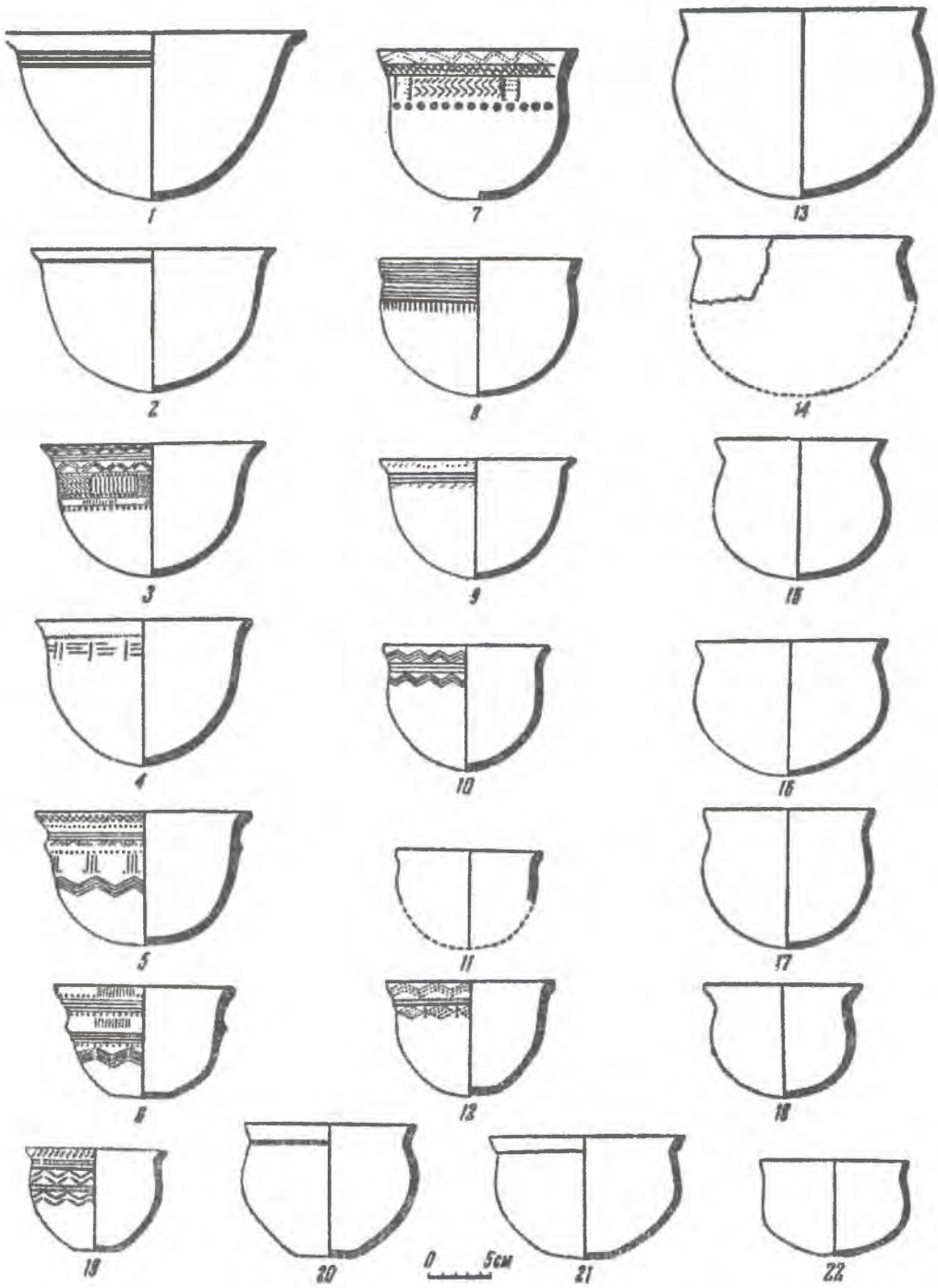


FIG. 421. Abashevo pots from the barrows of Turunovo **(1, 10, 11, 13, 14, 16-18, 22)**, Tapsher **(15, 21)**, Kugunur **(2, 3, 5-8, 19, 20)**, Sretenka **(12)**, Nartasy **(4)** and Vilial **(9)**, between the middle Volga and the lower Vjatka. *After* Khalikov, 1959.

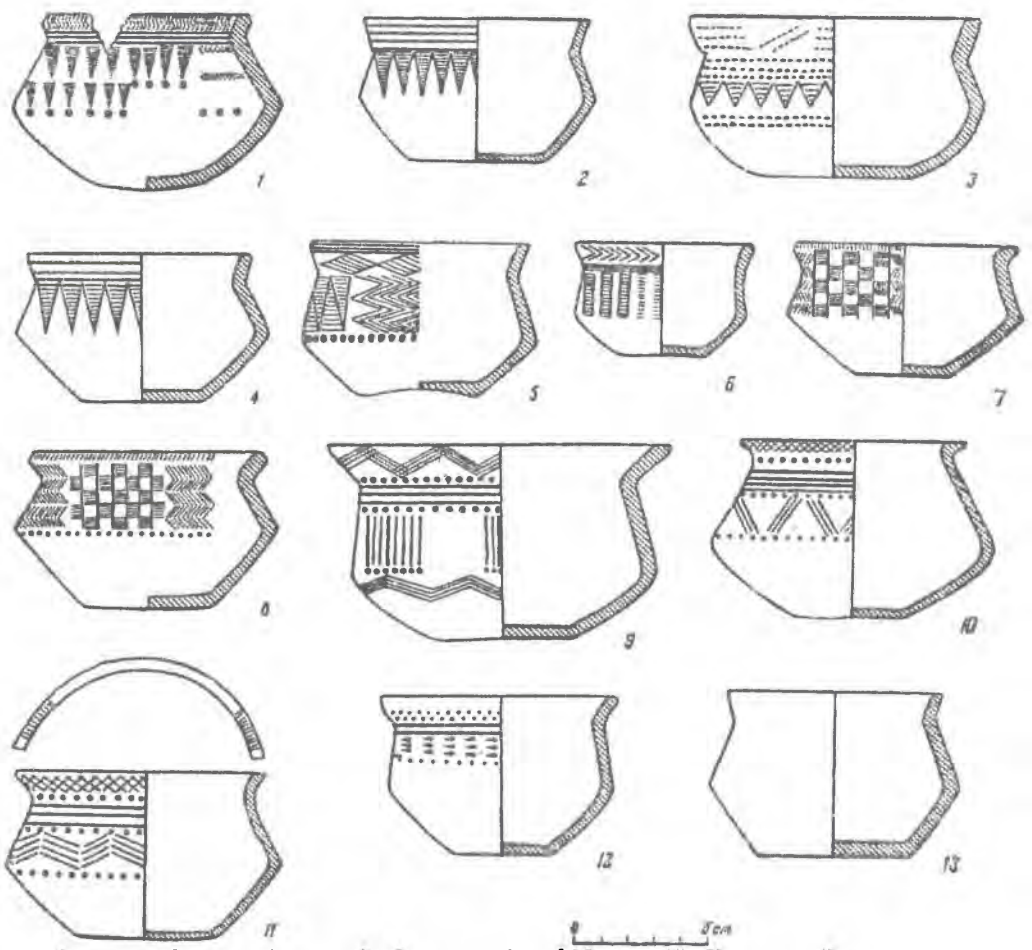


FIG. 422. Abashevo pots from the barrows in the cemeteries of Nartasy **(1)**, Turunovo **(2, 4, 8, 12, 13)**, Sretenka **(3)**, Troitskoe **(5, 6)**, Tapsher **(9)**, and Vilial **(11)**. *After* Khalikov, 1959.

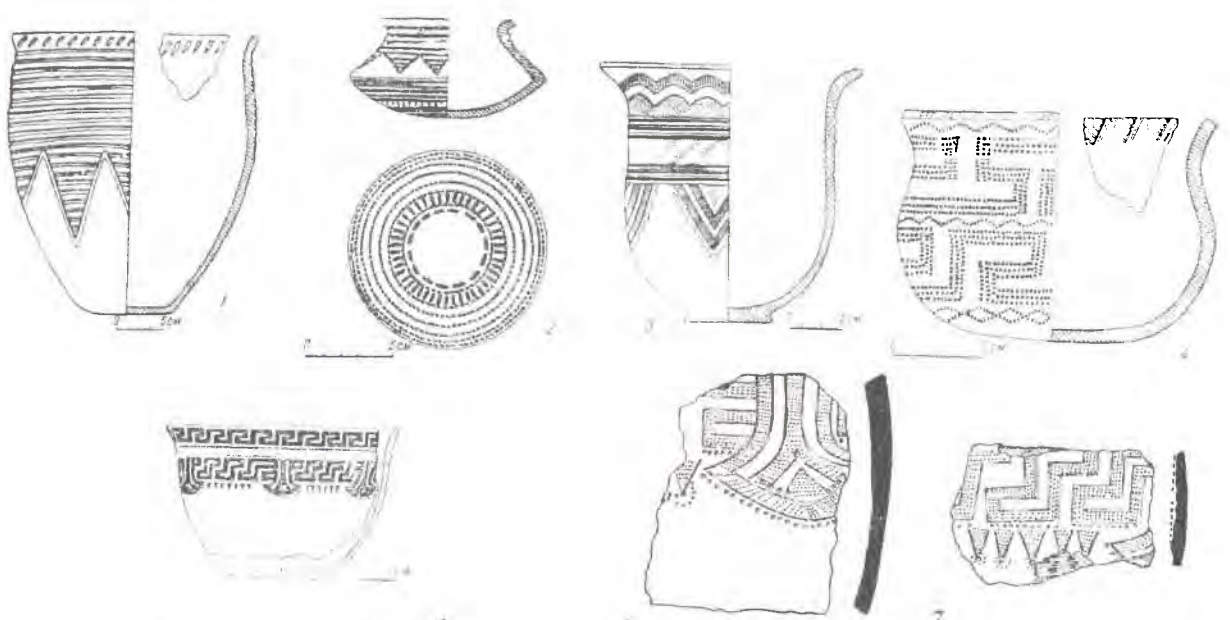


FIG. 423. Abashevo pottery from M. Kizyl **(1-4)** and Balanbash **(5-7)** sites in the southern Ural area. **6, 7,** sherds of the pot shown in **5**. *After* Sal'nikov, 1952, and 1954.

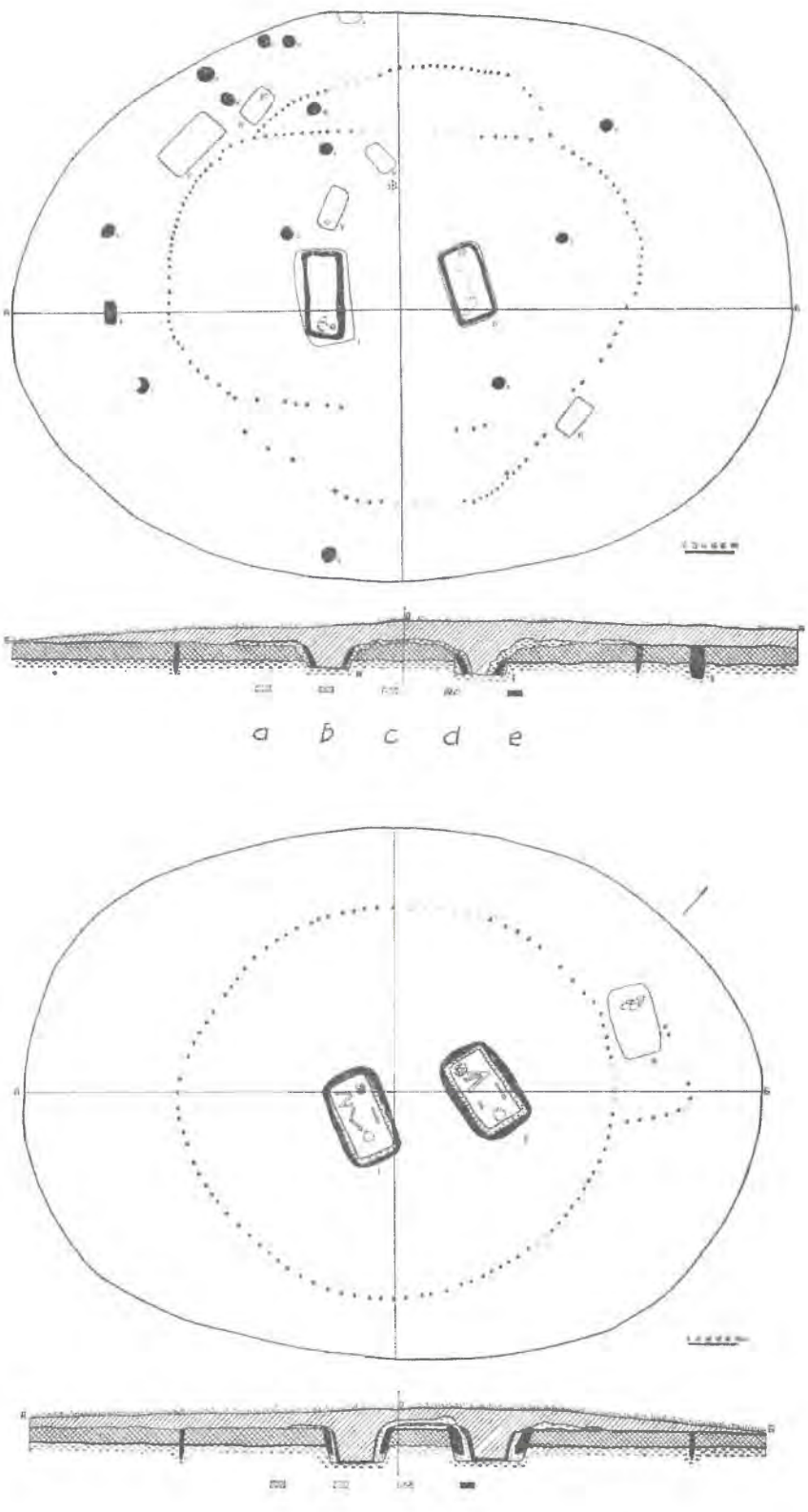


FIG. 424. Plans of Abashevo barrows from the cemetery of Pikshiki near Cheboksary, Chuvashia. Kurgans Nos. 12 and 13. *I-VI*, graves; **1-14,** pits from tombstones; *small black dots*, pits from timber fence; *a*, earthen barrow; *b*, soil of the ancient surface; *c*, clay; *d*, charcoal; *e*, arboreous septic from timber posts and timber-house structure. *By courtesy* of the excavator, N. Ja. Merpert (1958).

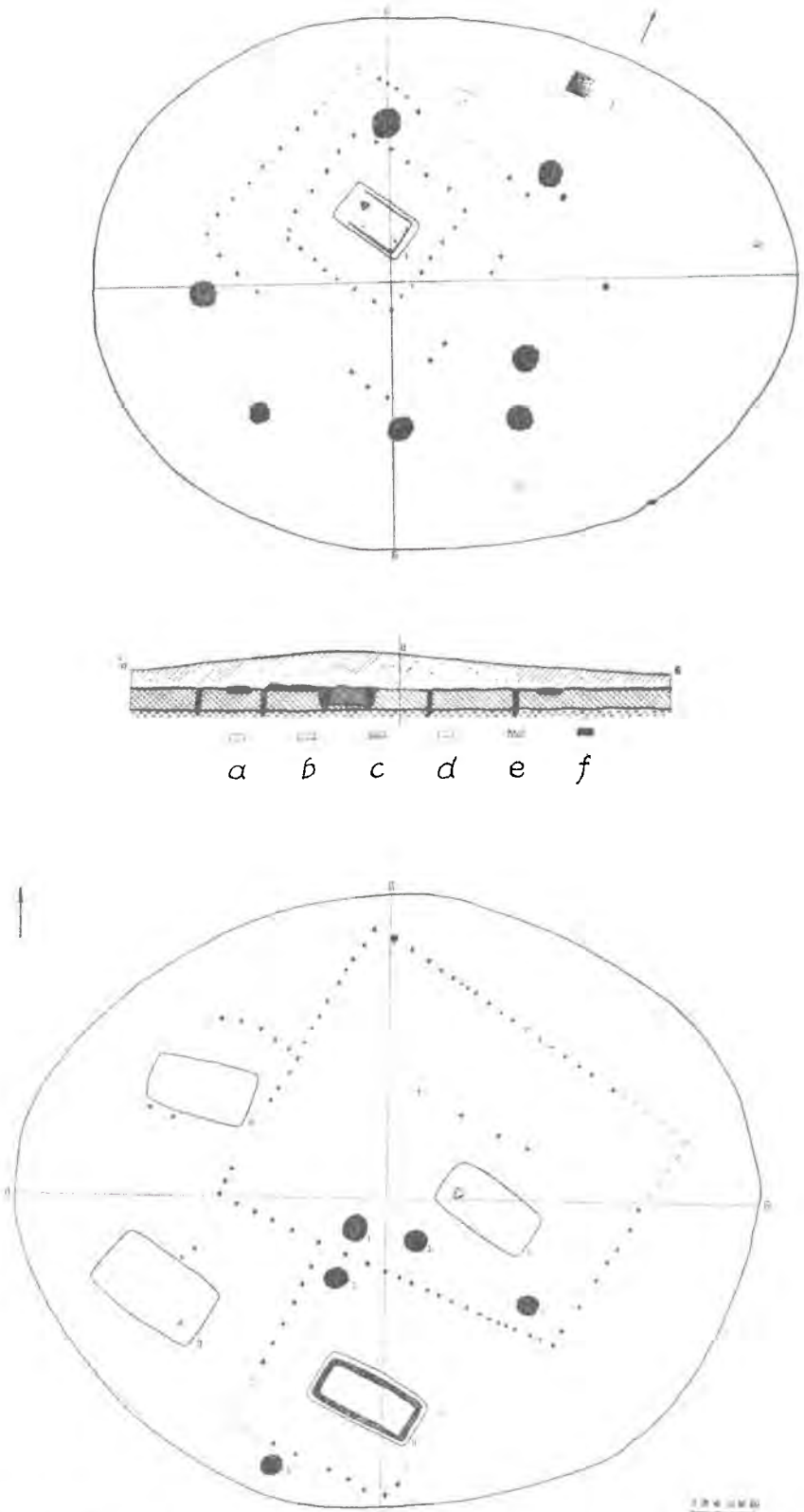


FIG. 425. Plans of Middle Bronze Age (Abashevo) barrows from the cemetery of Pikshiki near Cheboksary, Chuvashia. Kurgans No. 14 and 11. *I-III*, graves; **1-5**, pits from tombstones; *small black dots*, pits from timber stakes; *a*, earthen barrow; *b*, humus layer; *c*, ashes; *d*, clay; *e*, charcoal; *f*, arboreous septic from timber posts. *By courtesy* of the excavator, N. Ja. Merpert (1958).

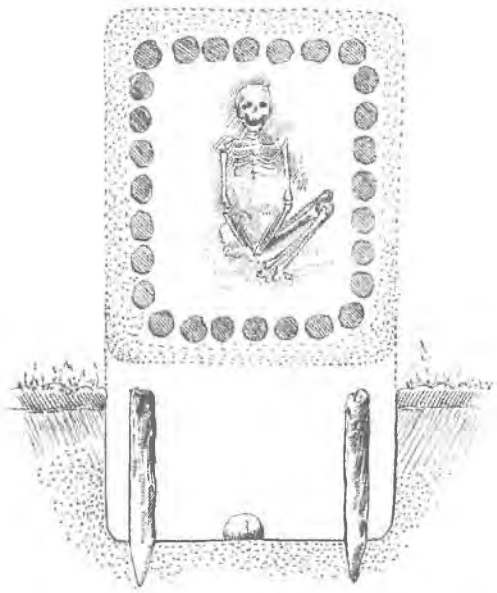


FIG. 426. Plan and section of an Abashevo grave from the cemetery of Pikshiki near Cheboksary, Chuvashia. *After* the sketch by the excavator, N. Ja. Merpert (1958).

house construction built of vertical logs (figs. 426), roofed with logs or planks. Inhumation rites were regularly practiced, but in several instances cremation was used, perhaps with sacrificial intent. The graves contained a bottom layer of sand or of sand and clay, while remains of a birch-bark layer below the skeletons were identified in several cases. The skeletons lay in a strongly contracted position, on their backs, frequently oriented to the east; single and occasional multiple burials are reported. Sheep and cattle bones frequently occur. Women were richly equipped with copper and silver ornaments – bracelets, spirals, pendants, rosette-shaped ornaments sewn on woolen garments, bone combs, etc. Men's graves yielded arrowheads, fishhooks, and awls, as well as ornaments. In some graves small rectangular wooden boxes with a round hollow in the middle of the bottom filled with charcoal were found (Krivtsova-Grakova, 1947, p. 93).

Burial ceremonies and peculiar burial rites are abundantly documented by hearths, cow, calf and sheep bones and burials of decapitated humans. In the Abashevo cemetery, the skeletons in several graves had no skulls. One of the kurgans excavated by V. Smolin in 1921 contained richly equipped single graves and a collective grave of seven individuals, none of which had skulls. The graves also were poorly equipped, for in all seven graves, only one pot, one arrowhead of bronze, two fishhooks, an awl, and a copper ring were found. In the Malyj Kizyl house a woman's skeleton was found close to a hearth, lying face downward with outstretched arms; there were no legs. The burial seems to represent a case of sacrificial death. In another hearth a femur and tibia were discovered, presumably belonging to the same dismembered skeleton. In the center of the house, close to the hearth, were found the calcinated bones of a small child, together with fragments of hair-rings and a copper bracelet. In excavations I and II of the site, hearths and the cremated bones of at least three cows were revealed. In a ditch a skeleton of a calf without the skull was found and close to it a piece of ochre and faïence, and to the south of this a second calf's skeleton was discovered lying on its right side, under a pot in a stone-covered pit.

Several human skulls from the cemeteries in Chuvashia (Ol'gino, Katergino-Bishevo, Abashevo, and Taush-Kosy) have been measured by Debets (1948) and Akimova (1950). All were massive, dolichocephalic or mesocephalic, of a broad-faced Europoid type and related in general to the Fat'janovo type. According to Gerasimov (1955, p. 527) the physical type of the Abashevo people underwent rather com-

plex process of formation. It is basically Europoid, of southeastern, Mediterranean origin, but mixed with the local half-breed type of the ancient population.

Many cultural elements, for instance, burial rituals, ornamental motifs on pottery and a similar level of technology and economy, knowledge of metallurgy, farming, stock-breeding, hunting, and fishing, indicate that the Balanovo and Abashevo groups had much in common. Did the Abashevo people belong to the Fat'janovo bloc and spread from the middle Volga-lower Kama area to the southern Urals?

These questions are associated with the problem of the origin of the Abashevo group, a problem examined by K. V. Sal'nikov (1954) in his study on the Abashevo culture in the southern Urals. Through comparison of Balanovo and Abashevo ornamental motifs, he came to the conclusion that the origin of the Abashevo in the Urals cannot be other than western. The Abashevo people must have expanded eastwards along the Belaja River to the Southern Urals and beyond the Urals.

The Abashevo sites in the east are sporadic and are outposts among Andronovo (fig. 406) sites. Some ornamental motifs on pottery, like meanders, and more frequently forms of copper artifacts, were taken from the Andronovo culture. Andronovo influences are evident even in the Abashevo groups on the middle Volga.

The distribution of identical copper or silver ornaments and tools shows that the Abashevo people from the southern Ural area exported finished metal objects to the middle Volga area and northern Russia. Very similar objects were found in Malyj Kizyl in the southern Urals, in the Abashevo cemetery in the Kazan area on the middle Volga, and in the Galich hoard in the district of Kostroma, northern Russia (fig. 73). The Abashevo cemetery lies some 600 km from Galich, and more than 1400 km from the Malyj Kizyl site. Between central Russia and the southern Urals, many isolated finds of Abashevo types have been made (Tallgren, 1916, pls. II, V, XV), thus confirming the existence of far reaching trade.

Why did the Abashevo people migrate (if they did) to the southern Urals? Were they lured by its rich deposits of copper ore? This may be one of the reasons. But more important is the fact that the Timber-grave people from the Early Bronze Age had settled in the Oka basin. They probably gained more and more dominance over central Russia, forcing the Fat'janovians to the east. Abashevo sites are found in clusters in the Chuvashian and Mari ASSR's, and then in the southern Urals, but the area between the Oka and the Sura rivers was retained by the Balanovo people, and there is no continuity of Abashevo cultural traits during successive periods. It seems that they were gradually overwhelmed by their southern neighbors, the Timber-grave and Andronovo people, and by the northern Turbino people who at this time were approaching the middle Volga area.

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XI

THE TURBINO CULTURE IN EASTERN RUSSIA AND NORTHWESTERN SIBERIA

A. DISTRIBUTION AND DISCOVERY

In eastern Russia and on both sides of the middle Urals a separate cultural entity had a long existence. Finds from the upper Kama River basin, west of the mountains, and others from the area east of the mountains in the districts of Sverdlovsk, Kirovograd, Nizhnij Tagil', to the district of Shadrinsk in the east and to Cheljabinsk in the south, show indubitable relationships. The Ural Mountains did not play the role of a cultural boundary. The whole Neolithic and Bronze Age complex of northwestern Siberia is very closely related to the archaeological materials of the middle Urals and the Kama River basin.

The present study, however, penetrates no farther into Siberia than the area immediately east of the Urals. In the west a related culture is evidenced north of the middle Volga, reaching westward to the Volga-Oka confluence and the district of Rjazan on the lower Oka (fig. 427). This western variant of the Turbino culture was to a certain degree influenced by the Fat'janovo and Timber-grave cultures.

In the middle Urals a number of tributaries arise which feed the Volga River system on the west and the Ob River system on the east. In addition to the small and large rivers, many lakes are found on both sides of the Urals, in the mountains and on the plains: some 250 lakes are reported in the district of Sverdlovsk alone, and in the area there are also many peat bogs, once lakes, which dried up gradually beginning with the Sub-Boreal period. As the archaeological remains and pollen diagrams from cultural layers in peat bogs show, the vegetation and fauna during the Sub-Boreal period did not differ from modern conditions. But the margin between the forest-steppe and steppe zone and the deciduous forest zone was somewhat farther north. The sites of the Turbino culture are found in a forest or taiga area north of the Volga River.

Fishing and hunting remained the chief sources of livelihood even through the Bronze Age. Changes in material cuture were due to southern influences; copper artifacts reached the upper Kama basin in the first centuries of the second millennium B.C., and local metallurgy was introduced about the middle of the second millennium B.C. or soon after. The big change which occurred with the coming of the Bronze Age was the introduction of food production into the economy. This is eivdenced by traces of farming and domestic animal bones at sites of the Sejma and later phases.

This cultural entity bears no name which would embrace its western and eastern branches. "Turbino culture" in Russian archaeological literature is a name for the Neolithic and Bronze Age culture in the Kama basin, but I shall apply this name to the whole area where sites with related materials appear, from northern central Russia to northwestern Siberia. Turbino is the name of an important cemetery with bronze and copper artifacts, located in the center of this culture at the confluence of the Kama and Chusovaja rivers, and known since 1891.

Finds before World War II were only sporadic. It was impossible to speak of a culture in this area, although remarkable sites like Sejma, Galich, Volosovo, all in northern central Russia, Turbino on the upper Kama, Shigir, and Gorbunovo, east of the Urals, had been known for a long time. Galich is actually one of the earliest sites known in northern Russia found in 1835, but systematic work was started in the 1940's and is being continued intensively. The best-explored area is the Kama basin,

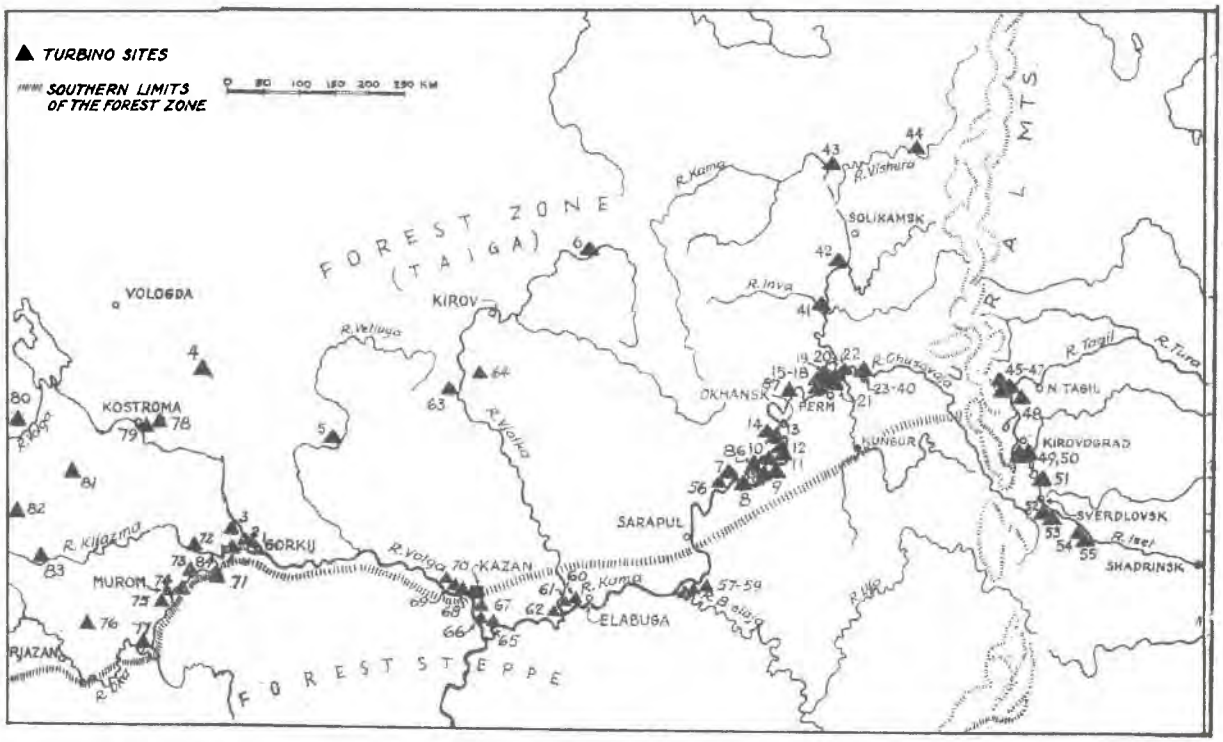


FIG. 427. Distribution of Turbino sites mentioned in text.

Key to Fig. 427:

1. Sejma cemetery
2. B. Kozino habitation site
3. Balakhna habitation site
4. Galich habitation site
5. Panovo gorodishche
6. Korshunovo bronze find
7. Nizhne-Razdornaja habitation site
8. Verkhne-Razdornaja habitation site
9. Basenkij Borok habitation site
10. Kama-Zhulanovskaja habitation site
11. Pervomajskoe habitation site
12. Olkhovskoe habitation site
13. Kamskij Bor II habitation site
14. Kamskij Bor I habitation site
15. Ust'-Gajva cemetery
16. Podgremjachinskoe habitation site
17. Gremjachij ruch habitation site
18. Turbino cemetery and habitation site
19. Levshino habitation site
20. Ust'-Chusovaja habitation site
21. Lake Grjaznyj habitation site
22. Nizhne and Verkhne Adishchevo habitation sites
23. Verkhne Gari habitation site
24-30. Bor I-VII habitation sites
31-37. Borovoe Ozero I-VII habitation sites
38. Maloe Borovoe Ozero habitation site
39. Vystelishna habitation site
40. Habitation site opposite Tolstik Island
41. Bazov Bor habitation site
42. Ogurdinskaja habitation site
43. Cherdyn bronze finds
44. "Pisannyj Kamen" rock-engraving and offering place
45-47. Gorbunovo peat bog sites
48. Poludenka habitation site
49. Shigir peat-bog sites
50. Annin Island habitation site
51. Koptjaki habitation site
52. Kalmatskij Brod habitation site
53. Losinnyj habitation site
54. Palkino habitation site
55. Makushinskoe habitation site
56. Starushka habitation site
57-59. Lake Sauz and Kuturgan-Erganak habitation sites
60. Ananino dune habitation site
61. Lugovo habitation site
62. Grokhan habitation site
63. Malmyzh habitation site
64. Buj habitation site
65. Atabaevo habitation sites
66. Kartashikha habitation sites
67. Otary habitation sites
68. Observatorja habitation site
69. Zajmishche habitation sites
70. Sumskaja habitation sites
71. Volodary habitation site
72. Kholomonikha habitation site
73. Plekhanov Bor habitation site
74. Volosovo habitation site
75. Panfilova habitation site
76. Vladychino habitation site
77. Iberdos habitation site
78. Stanok habitation site
79. Boranj habitation site
80. Jazykovo habitation site
81. Jazykovo habitation site
82. Vashutino habitation site
83. Nikolo-Perevoz habitation site
84. Bunkovo habitation site
85. Podboritsa-Shcherbininskaja habitation site
86. Chernashka habitation site
87. Erzovka habitation site
88. Zabojnoe habitation site

Index to Fig. 427:

Ananino dune habitation site (60)
Annin Island habitation site (50)
Atabaevo habitation sites (65)
Balakhna habitation site (3)
Basenkij Borok habitation site (9)
Bazov Bor habitation site (41)
Bor I-VII habitation sites (24-30)
Boranj habitation site (79)
Borovoe Ozero I-VII habitation sites (31-37)
Buj habitation site (64)
Bunkovo habitation site (83)

Cherdyn bronze finds (43)
Chernashka habitation site (85)
Erzovka habitation site (86)
Galich habitation site (4)
Gari (Verkhne) (23)
Gorbunovo peat bog sites (45-47)
Gremjachij ruch habitation site (17)
Lake Grjaznyj habitation site (21)
Grokhan habitation site (62)
Iberdos habitation site (77)
Jazykovo habitation site (80)
Kalmatskij Brod habitation site (52)
Kama-Zhulanovskaja habitation site (10)
Kamskij Bor I habitation site (14)
Kamskij Bor II habitation site (13)
Kartashikha habitation sites (66)
Kholomonikha habitation site (72)
Koptjaki habitation site (51)
Korshunovo bronze find (6)
B. Kozino habitation site (2)
Kuturgan-Erganak habitation site (59)
Levshino habitation site (19)
Losinnyj habitation site (53)
Lugovo habitation site (61)
Makushinskoe habitation site (55)
Malmyzh habitation site (63)
Maloe Borovoe Ozero habitation site (38)
Nikolaj-Perevoz habitation site (82)
Nizhne Adishchevo habitation site (22)
Nizhne-Razdornaja habitation site (7)
Observatorja habitation site (68)
Ogurdinskaja habitation site (42)
Olkhovskoe habitation site (12)
Otary habitation sites (67)
Palkino habitation site (54)
Panfilova habitation site (75)
Panovo gorodishche (5)
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"Pisannyj Kamen" rock-engravings and offering place (44)
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Sejma cemetery (1)
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Habitation site opposite Tolstik Island (40)
Turbino cemetery and habitation site (18)
Ust'-Chusovaja habitation site (20)
Ust'-Gajva cemetery (15)
Vashutino habitation site (81)
Verkhne Adishchevo habitation site (22)
Verkhne Gari habitation site (23)
Verkhne-Razdornaja habitation site (8)
Vladychino habitation site (76)
Volodary habitation site (71)
Volosovo habitation site (74)
Vystelishna habitation site (39)
Zabojnoe habitation site (87)
Zajmishche habitation sites (69)

where Turbino sites dating from various periods appear in compact groups. For over ten years, starting with 1947, the "Kama Archaeological Expedition" of the University of Perm headed by O. N. Bader made excavations here. The Gorbunovo peat bog site east of the middle Urals, which figured in the discovery of the Turbino culture, has been excavated by intervals since 1926. This site, which demands special attention, yielded unique pieces of wooden sculpture, and also four strata which are the basis for understanding cultural development during the Neolithic and Bronze Age periods.

A new chapter in the knowledge of this culture began when new discoveries were made in the middle Volga area. Archaeological work in the vicinity of Kazan started as early as 1860, but until the 1950-54 excavations by the Kujbyshev Expedition of the Archaeological Institute in Moscow, little systematic work had been done. The middle Volga finds are a connecting link between the middle Ural-upper Kama sites and the Volosovo, Sejma, Galich, and other assemblages in northern central Russia, which so far have been treated as separate groups.

The Turbino culture is a large cultural bloc spread across thousands of kilometers. There were some variations of this culture in the south, southwest, or the east, due to outside influences, but there are also many surprisingly similar elements all over the huge area, which can therefore be regarded as an entity. I shall not describe this culture in groups of different geographical areas but as a whole. In doing this I hope to avoid a series of names pertaining to one and the same culture, like "Shigir" or "Gorbunovo" east of the middle Urals, "Kama" in the Kama basin, "Kazan" in the middle Volga area, "Volosovo" and "Sejma" in northern central Russia, the latter being representatives of several phases of the western group of this large Eurasian culture.

B. SETTLEMENT PATTERN AND ECONOMY

The village remains of the Turbino culture are usually to be found on river and lake terraces. Semi-subterranean dwellings forming villages were found in a fairly large number of habitation sites. Some were sunk quite deep in the ground, reaching almost 2 m, so that the houses were actually subterranean and only the roofs were above the ground. Their outline was rectangular or irregular and they were

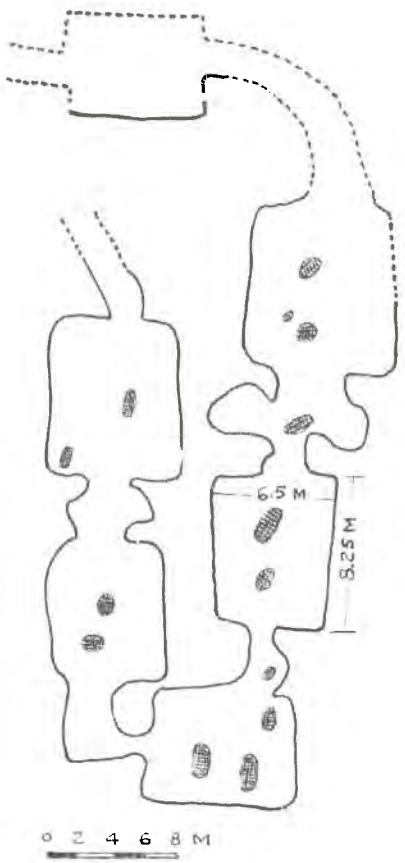


FIG. 428. Part of an excavated village at Astrakhanets, district of Perm. Classical Turbino. Outline of six interconnected houses with indication of hearths. *After* Prokoshev, 1939.

connected with one another, traces of wooden posts indicating that the roof was probably ridged and in some dwellings supported by two rows of posts. In several larger dwellings a partition had been used to divide the house into two rooms.

As reported from some 20 habitation sites, the dwellings are grouped by threes, fours, sixes, or eights and connected by corridors. The largest villages yielded from 19 to 23 houses. This demonstrates clearly that we have here quite a different village structure than in the south. For a general picture, several plans are given below of the excavated parts of villages from the upper Kama-lower Chusovaja area. A typical village is known from the site of Astrakhanets at Lake Grjaznyj north of Perm, where the excavations yielded six interconnected semisubterranean dwellings (fig. 428). The corridors were also semisubterranean and were covered with a separate roof. Their functions seem to have been similar to those of the dwellings; hearths, pits, and other cultural remains were found in both. In each dwelling there were two to four or more hearths. In the Borovoe Ozero II site on the lower Chusovaja, in 1,830 square meters of excavation, there were 11 dwellings of the same interconnected type (fig. 429). Figure 430 shows a reconstruction of the Borovoe Ozero II village. People lived in compact groups, as many as 100 to 200 people in a single village.

The same village structure is known from the area of Kazan and the lower Oka River. The habitation site of Zajmishche III west of the city of Kazan has revealed four interconnected houses encircling a sacrificial place which consisted of one central hearth 5.5 m across, 24 small hearths, and three pits encircling the central hearth (Kalinin and Khalikov, 1954, p. 224, fig. 39). It can be seen from the lower layers that the hearth was initially only 1.8 m across and surrounded by several pits. But it was used for a long time. In the large pits at the side of the hearth were a large number of bones of horses and

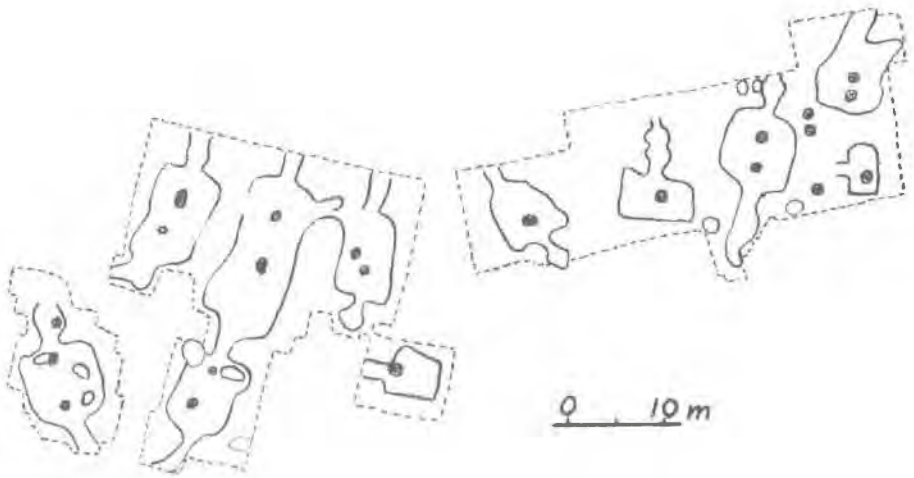


FIG. 429. Plans of semisubterranean houses of Borovoe Ozero II site on the lower Chusovaja. Classical Turbino. Disconnected line indicates the excavated area. *After* Bader, 1953a.



FIG. 430. Reconstruction of Borovoe Ozero II village. *After* Bader and Oborin, 1958.

cattle, whereas in the rest of the habitation area only a few were discovered. In the central hearth appeared thousands of potsherds, flint implements, and over 200 animal bones.

The type of village described above is confined to the larger part of the Bronze Age. In the Bor phase, which followed Sejma, a different, much longer type of house is known in the Kama area. In the sites of Borovoe Ozero VI and Bor III on the Chusovaja River (Bader, 1953a, 1953b) several large, long, semisubterranean dwellings were discovered. The Borovoe Ozero VI house was 36 m long and 7 m wide (see *below* fig. 448). One entrance was toward the lake, the other toward the forest. At the bottom of the dwelling five hearths were found, as well as several places showing traces of fire and several storage or refuse pits.

The occurrence of pestles, hoes, and the bones of domestic animals in the dwellings or habitation areas in the Sejma and later phases prove the existence of a food-producing economy. Such remains are

not known as yet from the period preceding the Sejma, with the exception of one stone hoe and a perforated pick found in the lower layer of the Gorbunovo peat bog in Section Six. As yet grains or their impressions have not been found. In one of the dwellings of Bor I on the lower Chusovaja, a Sejma phase site, there were found the bones of horses, cattle, pigs, and sheep. Within the perforation of a copper shaft-hole axe from Turbino a thread made of sheep wool was recovered, bearing witness to a sheep-raising and textile industry. A great number of stone hoes and pestles were found in Later Bronze Age habitation sites on the lower Kama (Bader and Kadikov, 1957) and around Kazan (Kalinin and Khalikov, 1954). Along with some pastoralism, stockbreeding, and hoe farming the Turbino people hunted and fished. Wild animal bones, particularly those of elk, prevailed in every habitation site. As hundreds of finds attest, during the Bronze Age hunting became more important than fishing: arrowheads, bows, scrapers, and other artifacts connected with hunting appeared in much greater numbers during the Sejma phase than during the Neolithic. For hunting, bows and arrows were the chief instruments. Seven wooden bows and a boomerang (pl. 103, *4*) were found in the middle layer of the Gorbunovo peat bog. In addition to flint arrowheads, there were others of slate and wood.

During the Sejma phase this area was involved in enormous trade activity. The area was in the center which connected the upper Yenisei area in central Siberia with the southeastern Baltic area, as is shown by Turbino knives with ram portrayals, socketed celts of Sejma type, rings of serpentine, and

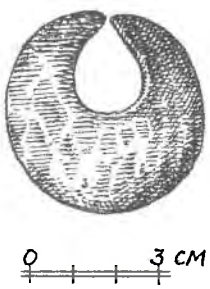


FIG. 431. Copper ornament typical of the classical Turbino culture.
Vystelishna habitation site on lower Chusovaja.
After Bader and Oborin, 1958.

a Baltic amber pendant found in the Borovoe Ozero II site on the Chusovaja. In a number of sites west of the Urals rock crystal and talc-tempered pottery were found which had been brought either from the Urals or from beyond. In the peat bogs wooden paddles, boats, and sled runners were preserved, paddles occurring in the lower and middle layers of the Gorbunovo site in Section Six (pls. 102:5, 103:6), as well as in the peat bog sites of Lake Shigir east of the middle Urals, while a sled runner was found in the lower Gorbunovo layer. During the 1885-86 excavations on Lake Shigir, in the so-called Jazevskij mine, a boat made of a hollowed tree trunk was revealed (Tolmachev, 1914, II, p. 172). It is obvious that for communication and transportation, waterways were used during the summer and ice during the winter, making trade relations possible with distant territories.

The efflorescence of trade coincides with the beginning of local metallurgy in the middle Urals. In the Beregovaja I site of the Gorbunovo peat bog a mold for celts was found (pl. 104, *3*). Local sources of copper to the east of the middle Urals evidently were discovered and explored around this period, and in sites on the middle and lower Kama River there are indubitable traces of local metallurgy. In the habitation site of Nizhne-Razdornoe six pieces of scoriaceous copper and three pieces of copper-lined sandstone used for smelting were found. In another site, called Basenkij Borok, along with 16 copper artifacts, fragments of a nozzle and copper drippings were discovered (Bader and Kadikov, 1957, p. 148). In the Koptjaki 5 site on the Iset' River, district of Sverdlovsk, in addition to a great number of flint, slate, other stone tools, and pottery, there were a mold, crucibles, hammers for smashing copper ore, a copper plate, and fragments of a bridle (Bers, 1951, p. 216). At the end of the Sejma phase individual types of ornaments appeared, such as semilunar pendants of copper (fig. 431).

Despite the exploitation of copper in the southern Urals and close communication between the peoples of the southern and middle Urals, the metal artifacts of the Sejma period differed from the southern forms. The bronze and copper artifacts were typical of the forest belt between central Russia and central Siberia. Spectroanalyses of the bronzes from the cemeteries of Ust'-Gajva and Turbino have shown that only the ornamented celts contained a considerable percentage of tin, 6-8 per cent. The other artifacts consisted of 98-99 per cent copper with traces of tin, lead, iron, nickel, antimony, arsenic, silicon, or magnesium (Bader and Sokolova, 1953a, p. 143; Kashtanov and Smirnov, 1958, tab. 1). This indicates that most of the metal artifacts were made of impure copper as it issued from the mines in the eastern slopes of the Ural mountains. No traces of copper mining or of production of bronzes of the Sejma type have been found in sites of the Sejma phase west of the Urals. Socketed celts of Sejma type must be imports from the east, for very similar celts, spearheads, and their molds are known from beyond the Urals in Siberia, in the basins of the upper Irtysh and Yenisei (figs. 64, 66).

In all sites cultural remains were best represented by pottery. Throughout the Bronze Age pottery exhibited one line of development, ranging from a rather primitive truncated-oval pot to a more advanced form with a definite neck. The ornamental motifs and techniques of production also changed gradually. During the third quarter of the second millennium B.C., the manufacture and decoration of pottery reached a peak. Clay was tempered with organic substance which rendered the vessels less heavy than those of earlier date, when the clay was mixed with sand or gravel. Vessels decorated with bands of geometric motifs, including zigzags, and water-bird and elk figures, impressed by a dentate stamp, are the most beautiful of the series. In the sites to the east of the middle Urals, and in the middle Volga area, strong Andronovo and Abashevo influences seen in flat-bottomed pots and specific decorative motifs such as meanders, triangles, etc. became apparent on pottery beginning with the third quarter of the second millennium B.C.; but the Kama-Chusovaja sites west of the middle Urals show an undisturbed local evolution of ceramic art. Flat-bottomed pots and Andronovo-Abashevo elements are almost unknown there.

C. BURIAL RITES, RELIGION, AND ART

There are only a few cemeteries known which belong to this culture. Many graves have been destroyed, and skeletal material has completely disintegrated. For example, in the cemetery of the Sejma horizon of Ust'-Gajva, situated on a sandy terrace on the bank of the Kama River near its confluence with the Chusovaja, there were five graves, but in none of them were any human bones preserved (Bader and Sokolova, 1953a). The same was true in the cemetery of Turbino (Bader, 1959b). From the position of the burial goods in the graves it could be seen that the inhumed bodies lay in an extended position. The dead were richly equipped with metal artifacts, sometimes as many as two and three to one grave, whereas in the large habitation area only a few metal tools appeared. Graves appeared in the habitation areas, as at the Volodary site of the Volosovo phase preceding Sejma. The dead were buried in flat graves with rectangular pits with oval corners and of the two graves uncovered in Volodary one had two skeletons, male and female, the other three skeletons badly preserved. The dead lay on their backs with contracted arms; legs were lowered in a separate, specially dug pit. All lay parallel to one another with heads oriented northeast or northwest, and traces of red ochre were found on the skulls. On the right femur of the female skeleton of the first grave lay an elk's bone and on the left femur, a small slate pendant: at her feet was a small hearth. In the ashes and charcoal appeared burnt flint artifacts or their fragments, polished stone tools, bone tools, and a small pot. Above the graves were located hearths which contained a great number of fish scales, which may indicate funeral meals. The female skeleton from the double grave was injured above the nasion, perhaps suggesting that she was killed in order to be buried along with the man (Gerasimov, 1955, pp. 397 ff.).

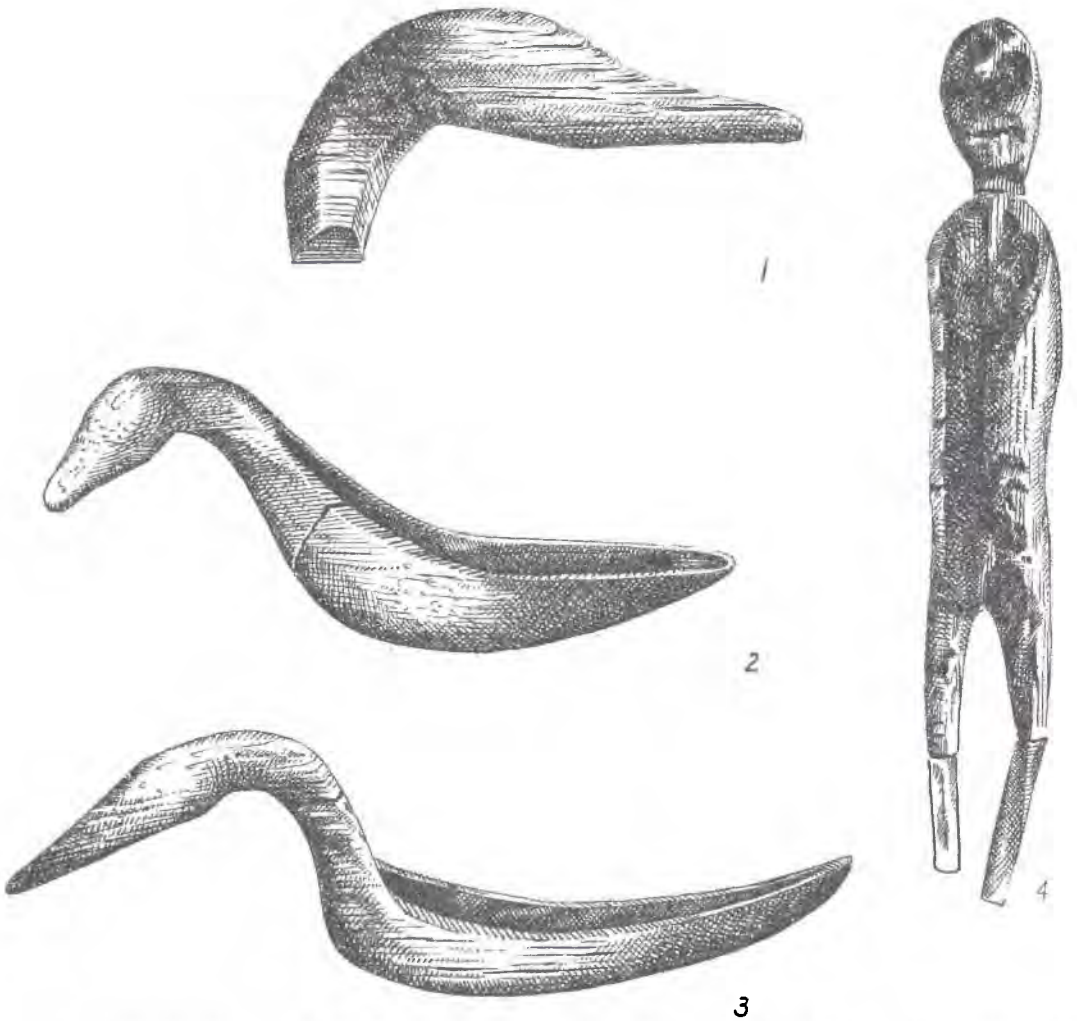


FIG. 432. **1,** duck's head; **2, 3,** ladles in the shape of waterbirds; and **4,** human idol carved in wood from the middle layer of the Gorbunovo peat-bog, Section Six. *After* Eding, 1940b.

A large number of wooden sculptures of bird, animal, and human forms from the peat bogs of Gorbunovo and Shigir are valuable relics of the north Eurasian art (fig. 432; pl. 106). Gorbunovo sculptures were already mentioned in Part I of the Prehistory of Eastern Europe (Gimbutas, 1956) in the general description of the northeast European art, as they certainly are representatives of a continuing Sub-Neolithic art. Since they were discovered in a well-dated cultural layer, i.e. in the Gorbunovo lower and middle layers in Section Six, they deserve special attention. Many other sculptures, made in stone, bone, or wood, are isolated finds and their dates cannot be established reliably. Water bird and elk figures on pots were made with stampings, and such pots, showing rows of swimming water birds or elks, are most decorative examples of the ceramic art of this culture (fig. 433). From the abundance of portrayals of water birds, particularly ducks and geese, and elk, it seems that these animals were most important in religion. In the Lake Shigir peat bogs several sculptures of bears were found, but bears seem to have been less important than elk. Most of the wooden sculptures from the middle Urals are realistic representations of elk figures, elk heads, ducks, and geese. Bird heads were usually carved on ladle handles, the ladle itself being in the form of the duck's or goose's body (fig. 432, *1-3*). Some of these heads are the apogee of post-Palaeolithic art, especially considering their age, their geographical locus, and the material from which they were made: observe the elk's muzzle on the figure from one of

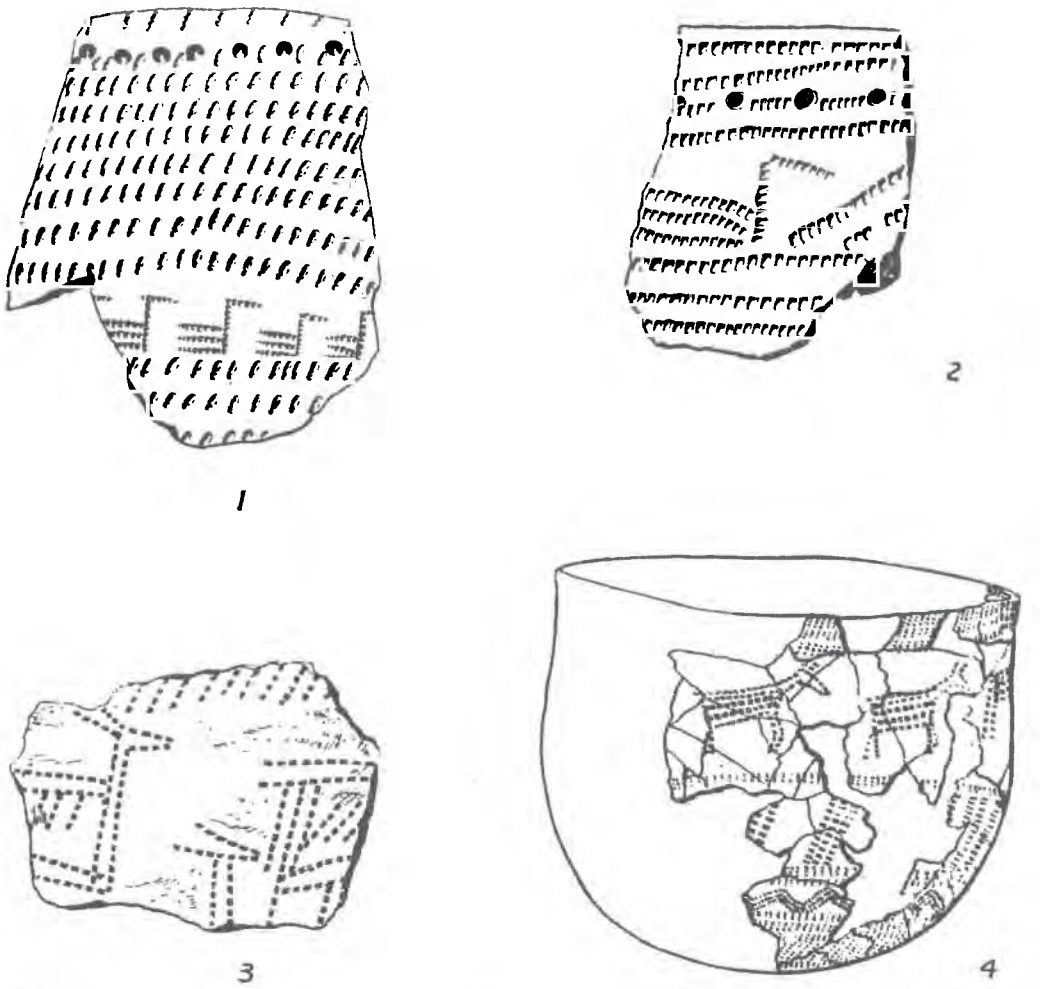


FIG. 433. Elk and waterbird figures stamped on pots. **1**, Beregovaja I site, Gorbunovo peat bog; **2**, find place unknown; **3**, Koptjaki No. 9 site, east of middle Urals. *After* Eding, 1940b **(1-3)**, and Bers, 1951 **(4)**.

the peat bog sites of Lake Shigir (pl. 106, *2*). Bird heads were not as carefully rendered as elk heads, but the figure of the duck or goose attained impressiveness through its graceful neck and body and the ladles were hollowed with great skill. The human idols of Gorbunovo were schematic, as is usual in the Neolithic art of northern Eurasia. Human figurines all seem to be male and were probably meant to represent a deity (fig. 432, *4*). Gorbunovo sculptures were located above or within the layers of the timber floor, but the excavators were not able to make any reconstructions of the house pattern. No other remains of habitation were found on the floors or around them. It is assumed that such timber constructions may have been specially built for sacrificial rites.

Another outstanding sacrificial place of the Gorbunovo and later periods was discovered on the Vishera River, a tributary of the upper Kama, immediately west of the Urals. This is more than 300 km north of the lower Chusovaja sites. The place is known as "Pisannyj Kamen'", a high rock covered with pictures of elk, half-human half-animal figures, human figures, and other symbols, painted in light ochre or dark red. Below the rock was a cultural layer containing remains of different periods. Some of the sherds and flints were typical of the Levshino and Sejma phases. The site was carefully explored by the Kama archaeological expedition, supervised by O. N. Bader, in 1949 (Bader, 1954c). Datable objects in the cultural remains assign some of the rock paintings to the Gorbunovo culture. The expedition discerned eight groupings of pictures, some differing in style and in the object portrayed. Among



FIG. 434. Rock engravings of the "Pisannyj Kamen'" rock. Vishera River (tributary of the upper Kama). *After* Gening, 1954.

the archaic-looking pictures elk were predominant; in general features these figures resemble the Lake Onega and White Sea rock pictures (fig. 434). It is probable that the Pisannyj Kamen' pictures belonged to the second millennium B.C.; some to the Levshino phase, some to the Sejma phase. In the cultural remains, thousands of animal bones, fragments of flints, flint artifacts, and some bone and metal tools were found. Elk bones predominate in the faunal remains. The bones of elk were also discovered in the crevices of the rock among the pictures. All this suggests that the elk was a frequent sacrificial animal. A great number of flints, mostly rough flakes as well as all sorts of irregular pieces, appeared, suggesting that these too had some ritual significance. Bader assumes that they were offered in connection with the fire cult. Offering places with elk bones and flints, dating from both prehistoric and present times, are known from many places in the forested Ural area as well as from eastern Siberia in the basin of the Lena River. The Mansi, east of the Urals, about the end of the nineteenth century A.D., used to kill large groups of elk at their offering places. On the upper Vishera these rites were reported as late as 1897 (Bader, 1954c, p. 257). Pisannyj Kamen' finds seem to prove the long duration of this type of sacrificial rite in the Ural area.

D. PHYSICAL TYPE

Only a few skulls were measured, too few to make valid inferences about the physical type. But what we can infer from the measured skulls is of importance: Mongoloid traits are present even in the Volga-lower Oka area. The measured skulls from the Volosovo and Sejma sites were Mongoloid: brachycephalic with Laponoid traits (Gerasimov, 1955, pp. 365-85).

E. CHRONOLOGICAL CLASSIFICATION

For dating the several distinct phases of the Bronze Age, the most effective means are (*1*) trade relations and (*2*) stratigraphy. People living on both sides of the middle Urals during the fourteenth century B.C. traded with northern central Russia and the Baltic peoples on the west, and with Siberians as far east as the Minusinsk area. The finds from the sites of Sejma, Ust'-Gajva, Turbino, and Gorbunovo (the middle layer in Section Six and Beregovaja I) are the best indicators for the chronological position of the phase which we call Sejma. These include a curved knife with three standing rams on the handle, celts of

Sejma type and their molds, daggers with broad blades, and serpentine rings. A fairly large number of sites can be assigned to the Sejma phase. The finds from the Sejma sites and the stratigraphical evidence at the Gorbunovo peat bog shape the whole chronology of this culture. Other phases can be extrapolated either through comparisons with artifacts of the Sejma phase or through the stratigraphy of the sites of the upper Kama-lower Chusovaja, Kazan, and lower Oka areas.

a. *Gorbunovo, a stratified peat bog site near Nizhnij Tagil'*

This site, the richest and best-explored of this culture area, deserves special mention. Below I shall give more details of the Bronze Age assemblages and the stratigraphy than were given in the brief description in my monograph of 1956.

The site was excavated by D. N. Eding in 1926, 1932, and 1936 (Eding, 1940a and 1940b) and by A. I. Brjusov in 1948 (Brjusov, 1952). Its well-preserved wooden sculptures of elk, water birds, human idols, and wooden tools made it one of the most famous sites in the north Eurasian forest belt. Its chronology, provided by stratigraphy and pollen analysis, is of outstanding value.

In one area of the peat bog, among several sections excavated, the one known as Section Six revealed three cultural layers, as follows: (*1*) The lowest layer, 210 to 225 cm below the surface, lay at the bottom of the peat bog. It contained clay net sinkers wrapped in birch bark, floats of birch bark, elk and duck sculptures in wood, human idols, wooden paddles, a trough-shaped sled runner approximately 2.5 m long with holes and eight pairs of mortises along the sides, wooden needles for net-making, bows, fragments of a birch-bark bag decorated with dark red ochre, and sherds from large round-bottomed pots with over-all surface decoration in dentate stamping, rocker stamping, pseudo-cord impressions, and deep wavy line incisions (pl. 102). (*2*) Separated from the lower layer by a sterile layer 22 to 60 cm thick, the middle layer at a depth of 145 cm contained remains of wooden floors, a series of human, snake, and water-bird sculptures in wood, wooden paddles, hooks, a boomerang, and a copper shaft-hole axe (pl. 103; fig. 432). In addition to the shaft-hole axe, several other metal artifacts appeared: a fragment of a double-edged knife and a piece of wire with which a wooden vessel was fastened. The sherds were thin and well fired and had been made of clay mixed with partially crushed talc. The shape of the pots was more sophisticated than during the preceding period, for instead of the ovate form with vertical walls they now had a slightly delineated neck and a thicker lip. New ornamental motifs, found along with the older ones of wavy lines, cord impressions, and rocker stampings, were striated bands, small triangles, and rhomboids filled with parallel dentate stampings, motifs somewhat related to those of Andronovo in the southern Urals. Mingling with the geometric designs were water bird and elk figures, executed by dentate stamp impressions (like those illustrated in figure 433). Similarities between the snake sculptures of Gorbunovo (pl. 103, *1*, *2*) and the snake on the handle of the Sejma dagger indicate the approximate contemporaneity of the middle layer with the Sejma horizon. (*3*) Overlying the middle layer was a thick layer of loess, above which cultural remains were found in groups: pottery dishes with meander ornament, pots with distinctive necks, ornamented around the upper part of the body, and the mold for a spearhead (fig. 435). This type of spearhead with massive socket is known from a late part of the Bronze Age and from the Ananino culture of the Kama River basin, west of the middle Urals.

Pollen analyses of the Gorbunovo peat bog shows two main phases of forest development. The early phase embraced the upper layer of the gittja and the lowest layer of the peat bog. This revealed a maximum of fir pollen (75 per cent), some birch, and very little hazelwood (1-3 per cent). The climate was rather wet and cold. The late phase encompassed all the remaining peat bog levels. Pollen analysis indicated a rise in pine, birch, and mixed oak forest as the climate became less humid and warmer (Raushenbakh, 1956, pp. 70 ff.). The change from the early (wet) to the late (dry) phase is clearly marked

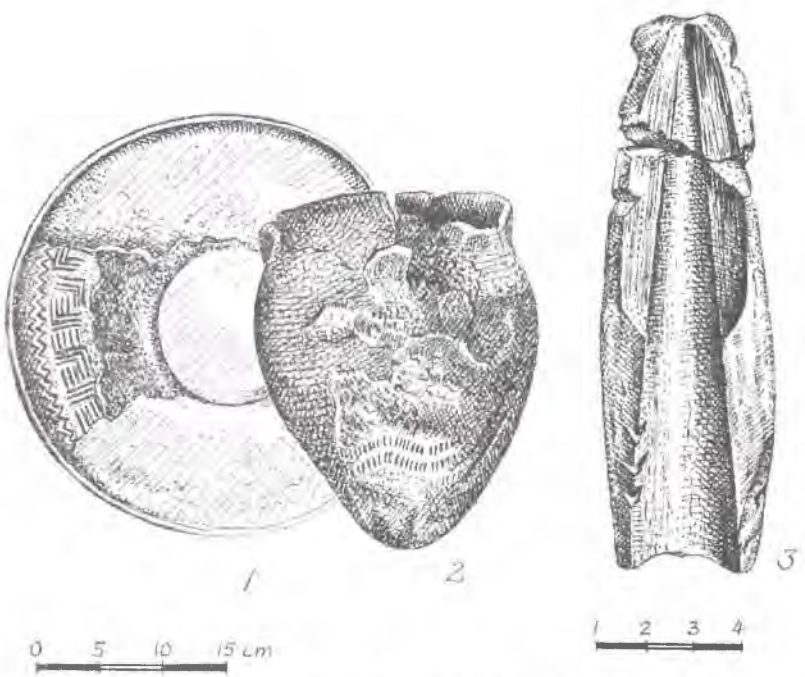


FIG. 435. Finds from the upper layer of Section Six in the peat bog of Gorbunovo. 1, dish; 2, pot; 3, clay mold for a spearhead. *After* Brjusov, 1952.

by transitional layers in the Gorbunovo and other peat bogs of the middle Ural area. They suggest a fluctuation in climate and a general reduction of humidity during the Bronze Age. This conjunction of two forest phases and several cultural layers in the Gorbunovo peat bog has already served, and will serve in the future, as a useful key to the chronology of other peat bogs and their archaeological contents from this region. The middle level of Section Six is certainly the most important for establishing Gorbunovo chronology. A typological comparison of its contents with the finds from Sejma and Turbino indicates that the middle level ought not to be earlier than the third quarter of the second millennium B.C. The Sejma assemblage belongs to the period between the fifteenth (or turn of the fourteenth) and thirteenth centuries B.C. Hence the middle level of the Gorbunovo Section Six should very probably be assigned at the earliest to the third quarter of the second millennium B.C., a period also suggested by the copper shaft-hole axe (pl. 103, *3*). The axe has close parallels in the Volga area, great numbers of them appearing around Kazan on the middle Volga and lower Kama (Tallgren, 1916, pls. I and II; Bader, 1957, figs. 8 and 9); the same type was also found in the Sejma cemetery (fig. 57). The chief producers of such axes were the Abashevo people in the middle Volga and southern Ural areas, the Timber-grave people in southern Russia, and Andronovo people east of the southern Urals, as is shown not only by the distribution of the axes, but also by the evidence of metallurgy discovered in the Abashevo, Timber-grave, and Andronovo habitation sites.

The approximate dates of the cultural remains preceding the middle level must be estimated by reference to its date. The lower layer of Gorbunovo Section Six must be placed somewhere within the first half of the second millennium B.C. or an earlier period.

In Gorbunovo, metal first appeared in the middle layer of Section Six. However, one should not exclude the possibility that metal was used in the middle Urals prior to the date of this level – the third quarter of the second millennium B.C. In sites along the Chusovaja River, west of the middle Urals, the earliest metal artifacts come from Levshino (*see below*, p. 622), whose pottery closely resembles that of the lower level of Section Six at Gorbunovo.

b. *Sites in the upper Kama and lower Chusovaja basins*

The 20 or so habitation sites and cemeteries on the lower Chusovaja and its confluence with the Kama River can be easily classified into groups: (*a*) sites preceding the cemetery of Turbino, which is relatively contemporary with the cemetery of Sejma; (*b*) sites contemporary with the Sejma and Turbino finds; (*c*) sites containing types later than the Turbino cemetery material. This is a generalized classification only. The intensive excavations by the Kama Archaeological Expedition between 1947 and 1952 (Bader, 1953; Bader and Sokolova, 1953) and several more recent excavations directed by O. N. Bader (Bader, 1954a, 1954b, 1959a, 1959d; Bader and Kadikov, 1957) have brought to light a considerable number of sites which extend the range and elaborate the chronological sequence. According to the evidence obtained from the excavation in the region of the upper Kama and lower Chusovaja, at least four phases can be discerned in the Bronze Age: (1) Levshino; (2) Gari or Sejma; (3) Bor; and (4) Erzovka. The first two phases run approximately parallel to the first two cultural strata from the Gorbunovo site in Section Six.

c. *Sites in the middle Volga area west of Kazan*

This is another cluster of chronologically significant sites. More than ten habitation sites excavated between 1950 and 1954 by the Kujbyshev Archaeological Expedition have revealed evidence of stratigraphy ranging from the Neolithic to the Late Bronze Age (Kalinin and Khalikov, 1954; Khalikov, 1958). The finds are related on the one hand to those of the upper Kama-lower Chusovaja basin, and on the other to the Volosovo group in the Volga-lower Oka basin.

d. *Volosovo sites around the Volga-Oka confluence*

In this area a number of sites, the sequence of which is best indicated by the presence of copper artifacts in several sites and by evidence of contacts with the southern food producers, have been discovered by both early and recent excavations. This group with its outstanding Sejma cemetery offers plenty of data for cross-dating.

From all the evidence we can extract from the middle Urals, the upper Kama-lower Chusovaja, the middle Volga, and the Volga-lower Kama areas we can build a chronological classification which fills out the second and the beginning of the first millennium B.C.

I am subdividing the whole period from *ca.* 2000 B.C. to *ca.* 800 B.C. into three major groups: early, classical, and late Turbino. Early Turbino, *ca.* 2000-1500 B.C., was still in a Chalcolithic stage. Only a few imported copper specimens appeared. Classical Turbino, *ca.* 1500-1100 B.C., was already acquainted with metallurgy and signs of a food-producing economy were present. Most characteristic features of the Turbino culture – the egg-shaped, rounded-based pottery decorated by impressions with a dentate stamp, and villages consisting of interconnected houses – belong to this period. Late Turbino, *ca.* 1100-800 B.C., was a full-fledged metal culture with food production prevalent in the economy at least in its southern region. It was heavily influenced by the Timber-grave culture of southern Russia.

For the designation of separate phases I shall use the names of sites which in one way or another are typical or important. The list of phases is as follows: (1) Levshino, (2) Volosovo, (3) Sejma, (4) Bor, (5) Erzovka or Grokhan. Levshino and Volosovo are representatives of the Chalcolithic stage or early Turbino, Sejma and Bor of the beginning of the Bronze Age or Classical Turbino, and Grokhan or Erzovka of the full-fledged Bronze Age or late Turbino.

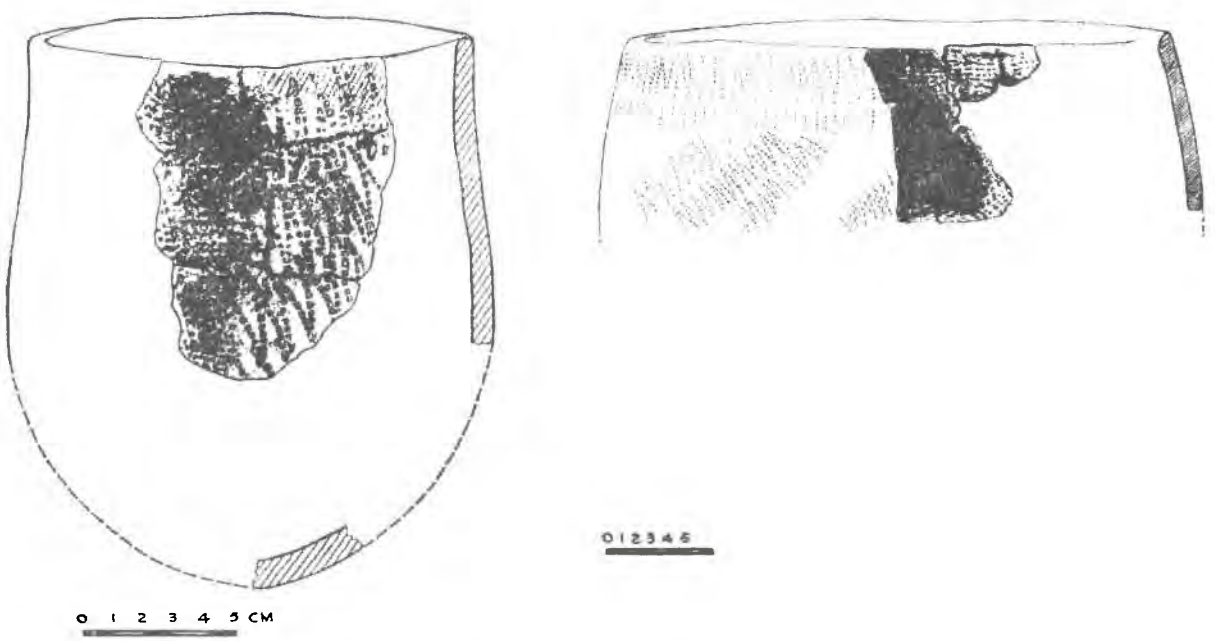


FIG. 436. Pots from the Levshino site. *After* Prokoshev, 1940.

1. *Early Turbino, ca. 2000 B.C. – 1500 B.C.*

a. *Levshino phase, ca. 2000 B.C. – ca. 1800 B.C.*

Early Turbino is best represented by the upper Kama-lower Chusovaja and the middle Volga groups. The lowest layer of Section Six in the Gorbunovo peat bog site probably is roughly contemporaneous with the finds of Levshino type west of the Urals. The site of Levshino on the lower Chusovaja near its confluence with the Kama River is the earliest habitation site containing metal artifacts, a copper knife and an awl, although its general character is still Stone Age. It belonged to fishers and hunters; no evidence of food production was found.

The site was systematically excavated in 1925 by A. V. Shmidt (Shmidt, 1940) and in 1934 by the Kama Expedition (Prokoshev, 1940a). It is located on a sand terrace about 200 m wide and 13-14 m above the level of the Kama River. In all, during the two periods of excavation, seven localities were dug, yielding thousands of potsherds, flint, quartzite, and other stone implements, copper artifacts, and hearths. The site was not stratified; all finds came from a gray, sandy layer, 25-65 cm thick, which occurred below the humus level and above a sterile level of yellow sand. Potsherds from both undecorated and decorated pots which were usually round-bottomed were abundant. The fabric was generally of untempered clay, although some sherds showed clay mixed with sand. Almost none of the sherds were well fired, as indicated by their light, sandy color, but a few were reddish or brownish, a result of open-hearth firing. Pots differed in size, and the large ones with rather thick walls, probably storage jars, were shaped like truncated ovals (fig. 436); the smaller pots made of the same sort of clay, used probably as drinking vessels, were of about the same form. Of the rare flat-bottomed pots, one was decorated with an incised solar emblem, a motif indicative of influence from the south. Pottery decoration was effected by impressions with dentate stamps of various sizes; rocker stamping was one of the typical decorative techniques employed (fig. 436). In addition there were impressions of zigzags, triangles, rows of simple incisings, diagonal and horizontal lines, pit impressions, etc. The undecorated sherds demonstrate that the vessels were not always decorated over the entire surface; sometimes the ornamentation was restricted to the upper part.

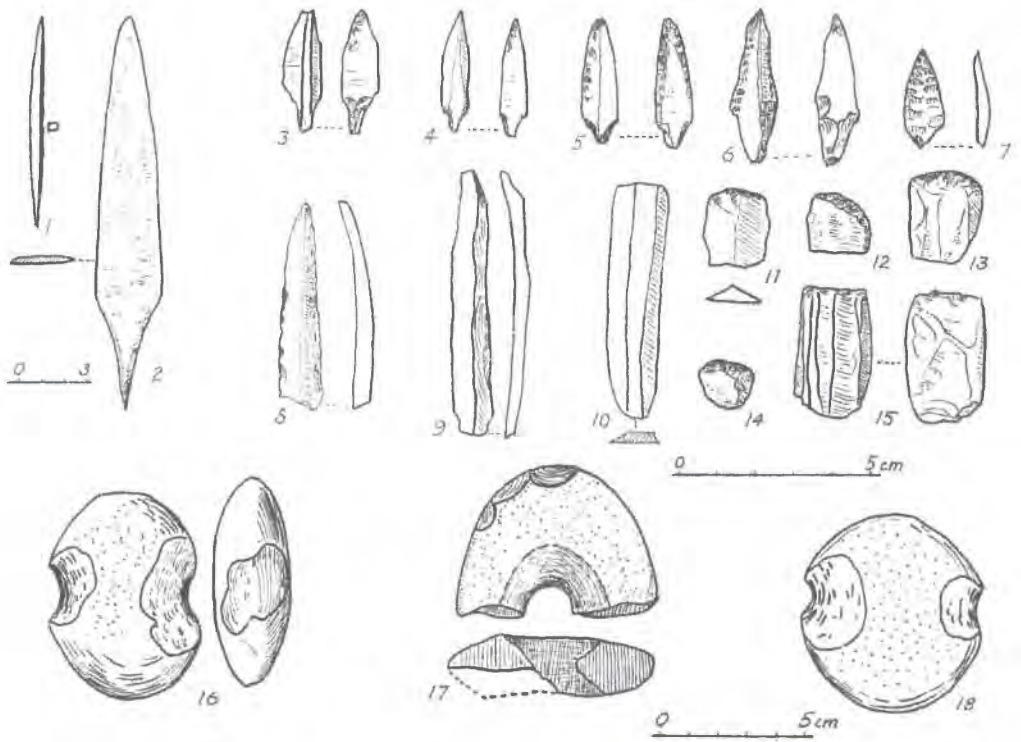


FIG. 437. Copper and stone artifacts from the habitation site of Levshino. **1**, copper awl; **2**, copper knife; **3-7**, flint arrowheads; **8-10**, flint knives; **11-14**, flint scrapers; **15**, prismatic flint nucleus; **16-18**, stone net-sinkers. *After* Prokoshev, 1940.

The flint tools exhibited some decidely archaic traits. They were made on both flakes and blades. Knives and small scrapers, elongated, round, or irregular, were similar in shape to Mesolithic and Sub-Neolithic examples (fig. 437, *8-14*). Leaf-shaped arrowheads, for the most part, had signs of retouching at the ends only (fig. 437, *3-6*), but along with these primitive examples there occurred bifacially retouched specimens (fig. 437, *7*). Small arrowheads were probably used chiefly for hunting water birds, while intensive fishing is evidenced by a large number of net sinkers made of pebbles. These were oval or round, with notches on the sides or perforations (fig. 437, *16-18*). No dwellings were found; the hearths and pits may have been associated with tents. Levshino was evidently a seasonal camping site.

The copper awl and knife (fig. 437, *1*, *2*) presumably arrived in this northern region by means of trade with the south. No traces of metallurgy have been observed. Another copper knife was discovered in the Chernashka site located on the Kama River between Sarapul and Okhansk (Bader, 1959b, fig. 47, *1*). The forms of the awl and the knife have analogies in southern Russia and the northern Caucasus which date from the beginning of the second millennium B.C. The closest analogies appear in the early Timber-grave culture of the lower Volga area, in the Catacomb-grave culture north of the Black Sea, and in the northern Caucasus.

Additional sites which may be approximately contemporary with the Levshino site were excavated in the same region at Verkhne Adishchevo, a destroyed habitation site excavated in 1947 by O. N. Bader (Bader and Sokolova, 1953a) and at Nizhne Adishchevo, where there are traces of two habitation sites excavated by A. V. Shmidt in 1930 and by O. N. Bader in 1947 and 1948, (Shmidt, 1935; Prokoshev, 1940a; Bader, 1951c).

In the north, Levshino pottery appeared in the habitation site of Bazov Bor, located on the bank of the Inva River, a tributary of the upper Kama (Bader, 1954a), and represented the earliest cultural

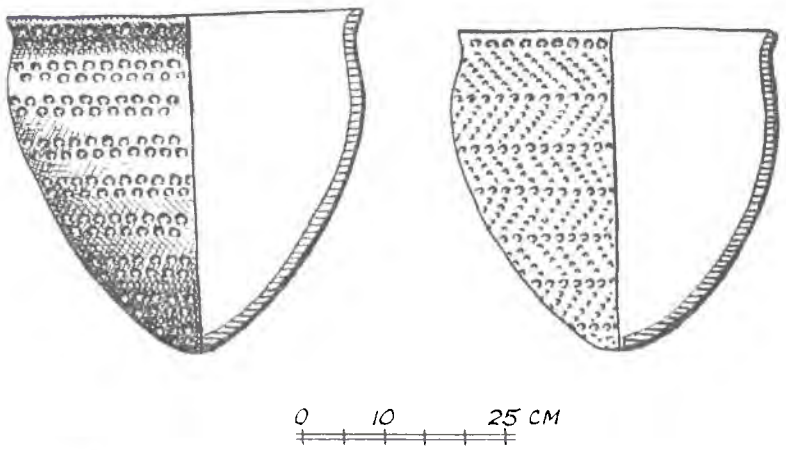


FIG. 438. Reconstructed early Turbino pots from the middle horizon of the lower layer of the habitation site Observatorja III near Kazan, middle Volga. *After* Khalikov, 1958.

remains of the site. This site also yielded a semisubterranean dwelling belonging to the Sejma phase and finds of a Pre-Ananino character.

In the middle Volga area in the vicinity of the city of Kazan related finds were made in the middle horizon of the lower layer of the Observatorja site, in the sites of Zajmishche IIIa and V, Russko-Lugovskaja I, II, Lukovskaja, and Zharenyj Bugor (Khalikov, 1958). Of this group I shall briefly describe only the stratified site of Observatorja. Its lower layer was composed of three habitation horizons: the lowest yielded the typical wide-mouthed pots with pointed bases which had analogies in the upper Kama (Borovoe Ozero I site) and middle Urals (Strelka site in the Gorbunovo peat bog), as well as round semisubterranean dwellings. The middle horizon contained pottery of a more evolved type. Pots still had pointed bases, but the mouth was not as wide as on the Neolithic pots, and the walls of the neck were slightly S-profiled (fig. 438). Clay was tempered with sand and fire brick (chamotte). The prevalent decorations were bands of impressions of comb-like stamp and bands of pits: this type of pottery is related to the Balakhna type from the Volga-Oka confluence area. Two rectangular houses, 7 m long and from 3 to 4.5 m wide, were found in this horizon, one subterranean, the other only slightly sunk in the ground. Inside there were several hearths and pits concentrated at the ends of the house, which may indicate that several families lived in one dwelling. Remains of timber suggest some kind of roof construction, probably saddleback. The roof was covered with sand (Khalikov, 1958, pp. 15-19). The type of house was generally related to that of the upper Kama and middle Urals found at several Neolithic sites (Borovoe Ozero I: Bader, 1951d, p. 91; Poludenka: Bader, 1947).

b. *Volosovo phase and "culture", ca. 1800 B.C. – ca. 1500 B.C.*

This phase differs from the preceding by its more developed stone industry, more varied pottery decoration, and somewhat different type of house. Except for a few copper objects found in the sites, it retained its Stone Age character. The Volosovo people in the areas of the Volga-lower Oka and the middle Volga around the city of Kazan were fellow-inhabitants of the food-producing newcomers, the Fat'janovo people. The hunter-fishers occupied dunes along the waters, the food producers the highest riverbanks. Their contemporaneity is witnessed by a cuff-shaped bracelet found in the habitation site of Vladychino situated on Lake Velikoe near Egorevsk, district of Rjazan, which belongs to the Volosovo phase. The bracelet was very similar to that found in the Fat'janovo site of Mytishchi (pl. 100, *7*). Another piece of evidence is the peculiar collective Fat'janovo grave in the Volosovo habitation site at Nikolo-Perevoz,

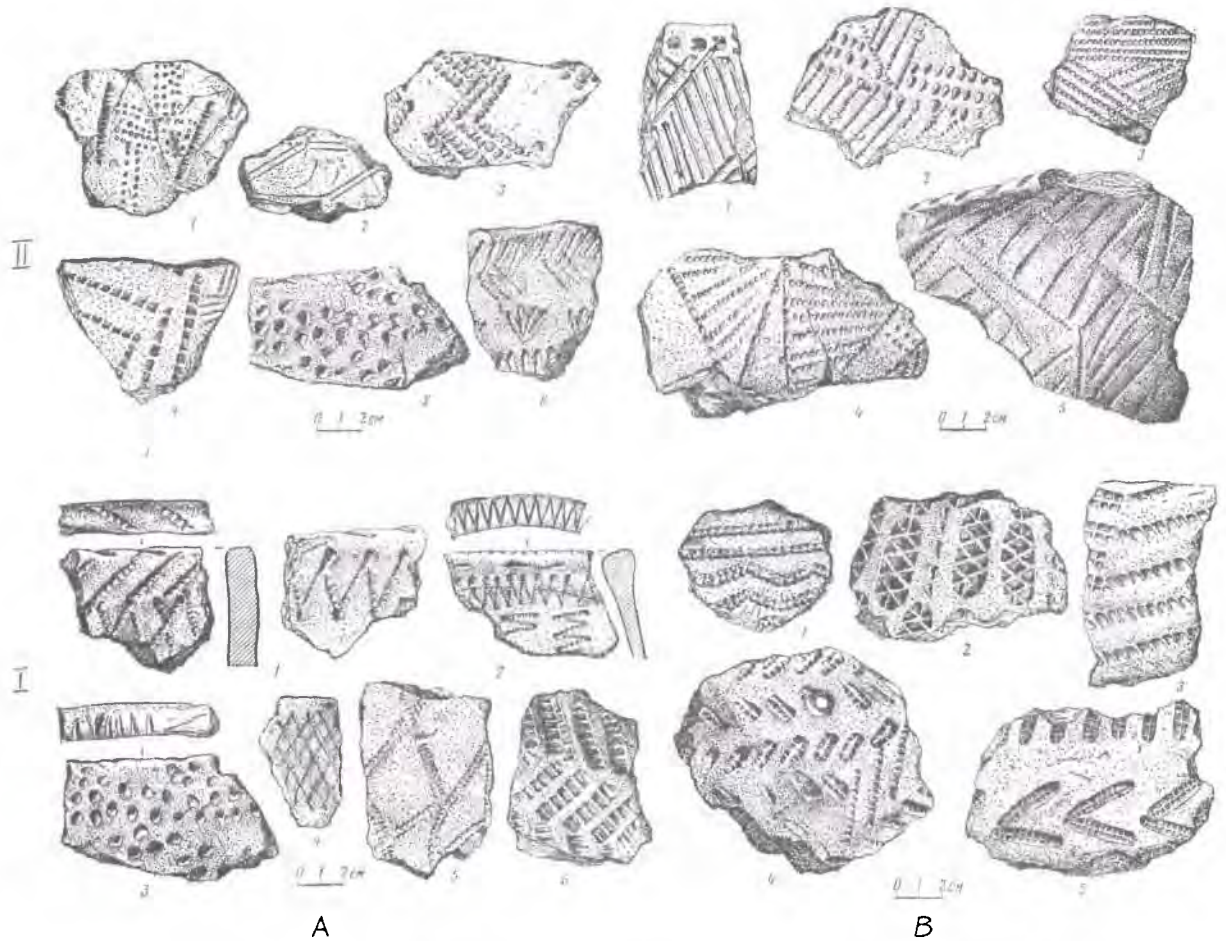


FIG. 439. Pottery from the habitation site of Volodary near Gorkij, central Russia. I, *A*, floor of the house No. 2; *B*, filling of house No. 2; II, upper part of the cultural layer. *After* Tsvetkova, 1958.

which in addition to Fat'janovo objects included Volosovo flint arrowheads (Raushenbakh, 1960; *see* references for the Fat'janovo Culture).

Volosovo is a name used to designate the central Russian assemblages which followed the Neolithic Pit-marked pottery culture. Volosovo was considered to be a separate cultural entity with no genetic relation to the Kama-middle Volga area or the middle Urals (Brjusov, 1952; Tsvetkova, 1957) but recent finds near Kazan have changed this picture. They show that the Volosovo assemblage is very closely related to the finds from the middle Volga and Kama basin, a fact already noted by Bader and Khalikov in their publications of 1958. I am inclined to use "Volosovo" as a label for a chronological period of this large cultural bloc, although Volosovo proper is a western branch of the Turbino culture with a number of individual features.

In the habitation site of Volosovo, situated on the small Veletma River near the city of Murom, thousands of stone artifacts and ceramic finds were discovered as well as traces of semisubterranean dwellings. The cultural layer was thick, in some places as much as 1.3 m. The lower part of the cultural layer belonged to the central Russian Pit-marked Pottery culture (the Balakhna variant), the upper part to the actual Volosovo phase. To this upper layer belongs a huge hoard of 118 stone artifacts found on the slope of the dune at the cemetery and site called early Volosovo, "Starshij Volosovo" (the same Volosovo area yielded another cemetery of later date designated late Volosovo "Mladshij Volosovo", which contained textile-impressed pottery and bronze celts of Mälar type). The site was excavated between 1877 and 1928 (Kudrjavtsev, 1893; Iversen, 1903; Gorodtsov, 1914; Zhukov, 1928). Another

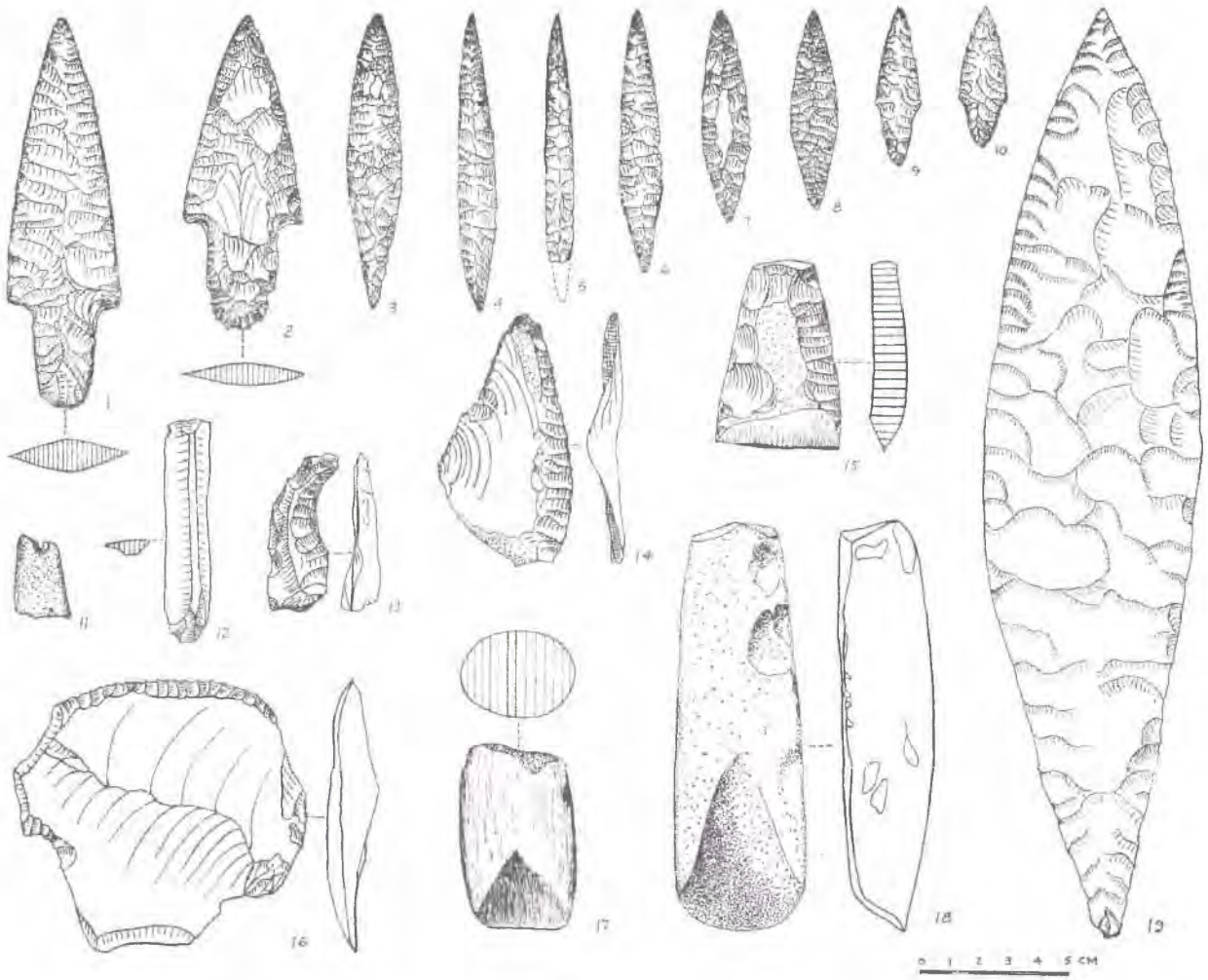


FIG. 440. Flint and stone artifacts (main types) from the Volosovo hoard near Murom, central Russia. **1, 2,** spearheads; **3-10,** arrowheads; **11,** pendant; **12,** blade; **13,** curved knife; **14,** side-scraper; **15,** flint celt; **16,** large scraper; **17,** round axe; **18,** gouge; **19,** flint dagger. *After* Tsvetkova, 1957.

outstanding site is the stratified site of Volodary on the lower Oka, district of Gorkij (Tsvetkova, 1948, 1958). The lowest horizon of habitation in the Volodary houses belongs to the Volosovo phase. The equivalent assemblages of finds in the area of Kazan were brought to light in the habitation site of Sumskaja I and in the upper horizon of the lower layer of the Observatorja III site (Khalikov, 1958, pp. 19-30).

Pots were gigantic, some 50-60 cm high, with thick walls; rounded bases still prevailed. The lip was considerably thickened and some pots had a slight S-profile. The clay was tempered with crushed shells. The decoration was most frequently executed with a dentate (comblike) stamp of various proportions (fig. 439, I, *A*, *1*, *5*, *6*; *B*; pl. 107, *1-3*, *6*, *11-15*). The usual patterns were bands of diagonal stamping, rocker stamping (fig. 439, I, *A*, *2*; pl. 107, *7*, *9*), net patterns (fig. 439, I, *A*, *4*), and rhombs (fig. 439, I, *A*, *5*). The latter two, together with cord impressions which also sometimes appear on Volosovo pots, could have been borrowed from Fat'janovo decoration. Impressions of pits also occur (fig. 439, I, *A*, *3*). The nature of the stone industry is best represented by the Volosovo hoard (a deposit of finished artifacts for safekeeping or trade?) which contained flint daggers (fig. 440, *19*), leaf-shaped arrowheads (fig. 440, *3-10*) and tanged spearheads (fig. 440, *1*, *2*, pl. 108, *1*, *2*), polished stone gouges (fig. 440, *18*; pl. 108, *3*, *6*),

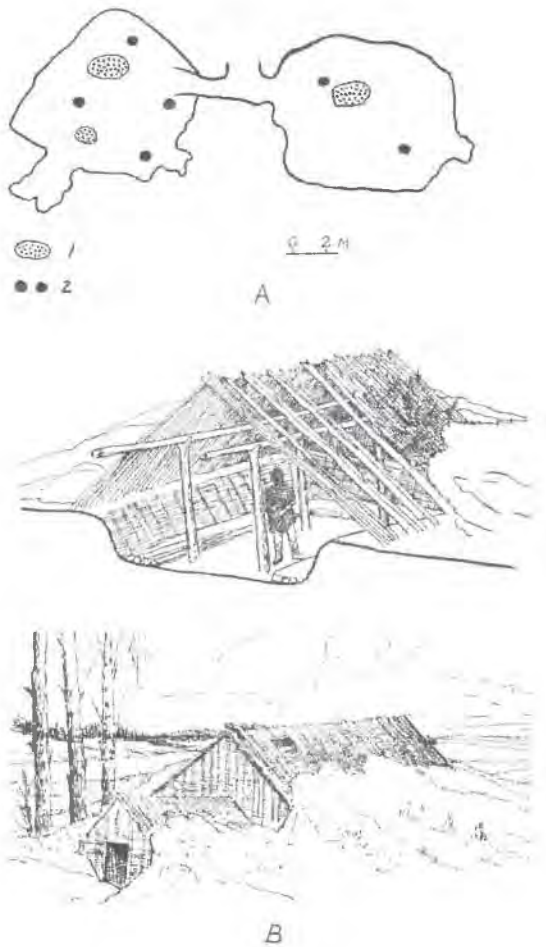


FIG. 441. *A*, plan of two semisubterranean dwellings connected by a corridor from the habitation site of Volodary, district of Gorkij, central Russia. **1**, hearth; **2**, pits from timber posts. *B*, reconstruction of the semisubterranean house No. 1. *After* Tsvetkova, 1958.

axes (fig. 440, *17*) and celts (fig. 440, *15*; pl. 108, *4*), flint scrapers, both large and small (fig. 440, *14*, *16*), knife blades (fig. 440, *12*), flint nuclei, and a slate pendant (fig. 440, *11*). The artifacts were bifacially retouched and of outstanding workmanship.

Numbers of well-polished and unpolished gouges, trapezoidal celts, flint arrowheads and spearheads, scrapers, and other tools of closely related shape to that of the artifacts in the Volosovo hoard were found in the site of Sumskaja near Kazan (Khalikov, 1958, figs. 11 and 12). In Zausailov's collection many of the flint and stone tools which he bought in the city of Kazan are of the same form as those from the hoard of Volosovo and the site of Sumskaja (finds are in the Kansallismuseo of Helsinki). Related stone specimens also occur beyond the Urals. The trade in completed stone artifacts seems to have covered a large part of eastern Russia and northern Siberia. One of the centers of production probably lay on the lower Oka, as the Volosovo hoard and a workshop in the site of Volodary indicate (Tsvetkova, 1948).

The best-preserved houses are from the site of Volodary. Two semisubterranean dwellings joined by a corridor were excavated here in 1947 and 1949 (Tsvetkova, 1958). So far they are the earliest examples of the interconnected houses which are very typical of eastern Russia. Houses were roughly rectangular in plan, one measuring 9.5 × 8.5 m, the other 10.5 × 9 m, sunk about 1 m in the ground; both had porchlike entrances and the remains of four posts, presumably about 2-2.5 m high, which supported the

roof. The lower ends of the roof beams rested on the ground, and the roof was covered with twigs, birch bark or grass, and earth. The floor was level; in each house were one or several hearths. The excavator, I. K. Tsvetkova, has made a reconstruction of one of the dwellings, shown in figure 441 *A*, *left*, and *B*.

In a semisubterranean house at Iberdos near Kasimov, district of Rjazan, Tsvetkova discovered in 1960 a grave containing half of a skeleton with boar's tusk ornaments on both sides of the skull (State Historical Museum, Moscow).

The Volosovo period was about parallel with the Early Bronze Age Fat'janovo and on this basis it can be dated to the period between 1800 and 1500 B.C. The stratigraphy of the village of Volodary shows that it had a prolonged existence. The upper part of the cultural layer of this site yielded pottery sherds tempered with organic material that did not occur in pottery from the lower layer or in pottery from the Volosovo site itself. The ornamental motifs also differed, although decoration by impression with a dentate stamp still prevailed. There were also pit impressions and incised lines (fig. 439, *II*). Among the motifs were triangles, zigzags, herringbone motifs, and rhombs. Similar pottery comes from the habitation site of Panfilovo near Murom on the lower Oka (Gorodtsov, 1925). Thus upper Volodary and Panfilovo represent a later Volosovo phase, which if treated separately could be labeled the Panfilovo phase.

2. *The Classical Turbino period, ca. 1500 B.C. – ca. 1100 B.C.*

The best-known names in the studies of the Russian Bronze Age, such as the cemeteries of Sejma and Turbino, belong to this period. There are a great number of sites which yielded either metal finds, flint tools, or pottery which were related to those at Sejma or Turbino and thus must date from the time around the fourteenth century B.C. Stratigraphy and typology allow us to subdivide the classical period into two groups at least: (1) Early, embracing the actual Sejma and Turbino site materials together with some slightly earlier or later assemblages of finds. The date *ca.* 1500 to *ca.* 1300 B.C. covers a longer period than that of the actual finds from the Sejma and Turbino cemeteries. The excavator of the upper Kama-Chusovaja sites, O. N. Bader, uses the name "Gari" for this phase, after a habitation site near the Kama-Chusovaja confluence at the village of Gari. Hence "Gari" or Sejma in the upper Kama area is a label for the early classical period. (2) Late, comprising a number of sites which stratigraphically and typologically are proved to be later than the horizon of the Sejma and Turbino cemeteries but earlier than Late Turbino. It is labeled "Bor" after the site Bor II on the lower Chusovaja.

a. *The Early Classical or Sejma phase, ca. 1500 B.C. – 1300/1250 B.C.*

This phase is documented by cemeteries rich in metal, such as Sejma, Turbino, and Ust'-Gajva, and by many habitation sites; among the more important are: Kholomonikha on the Kljazma River (Bader, 1929); Podboritsa-Shcherbininskaja southwest of Gorkij (excavated in 1956 by I. K. Tsvetkova; finds in State Historical Museum in Moscow); the lower layer of Zajmishche III and the upper horizon of the lower layer of Observatorja III in the vicinity of Kazan (Kalinin and Khalikov, 1954; Khalikov, 1958); Zabojnoe and Novo Il'inskoe on the Kama River between Perm and Elaburg (Bader, 1959b); Gari, Borovoe Ozero II, and Bor I in the upper Kama-lower Chusovaja area; the middle layer of Gorbunovo Section Six; and Beregovaja I in the middle Urals. Sejma has been mentioned in the chapter on fixed points in chronology as one of the outstanding sites (figs. 56-58; 59, *1*; 60, *1*; 66, *9*; pl. 17A, *1*).

The Turbino site consists of two cemeteries and a habitation area situated on a high bank of the Kama River opposite the mouth of the Chusovaja. The habitation area yielded many potsherds of both early and late character, representing at least three different cultural horizons. Pots from the lowest layer had rounded bottoms, vertical or somewhat outwardly curved walls, and an over-all decoration of

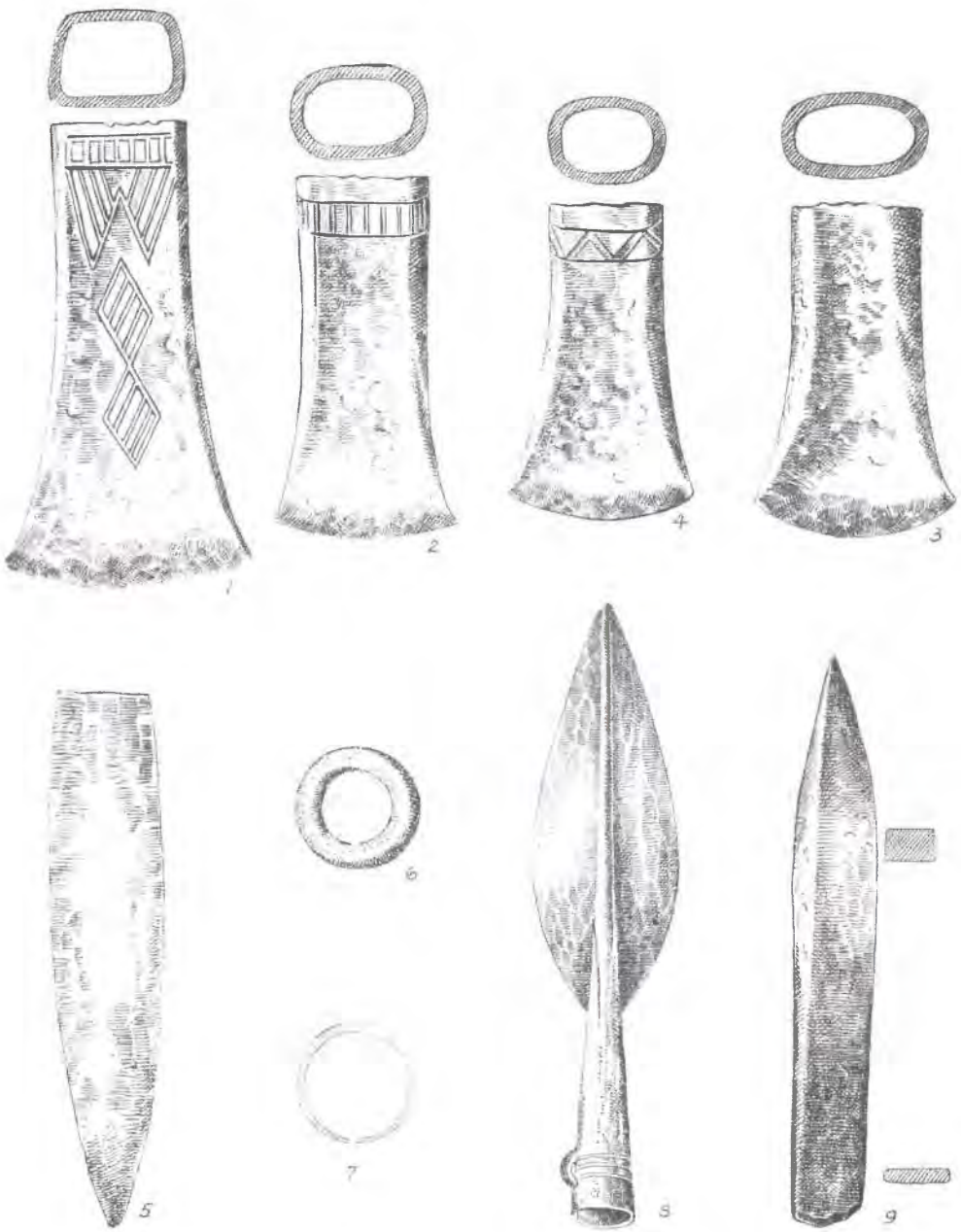


FIG. 442. **1-4,** socketed celts of bronze; **5,** copper dagger blade; **6,** nephrite ring; **7,** silver bracelet; **8,** silver spearhead; and **9,** copper wedgelike tool from the cemetery of Turbino, Kama-Chusovaja confluence. Scale approx. 1/2. *After* Zbrueva, 1952, and Bader, 1959.

dentate stampings. This layer may belong to the same period as the cemetery, but that is not certain as no pottery occurred in the graves.

The value of the Turbino site derives from the great number of bronze and copper artifacts recovered from its graves. A curved knife with three standing rams on the handle (pl. 17 A, *2*; fig. 59, *2*), a spearhead, and several celts of Sejma type were found by a farmer near the village of Turbino in 1891. In 1924 and 1934-35 excavations were made on "Shustovo" hill across the ravine from the village, where graves furnished with metal artifacts of Sejma type and traces of continuous habitation were found

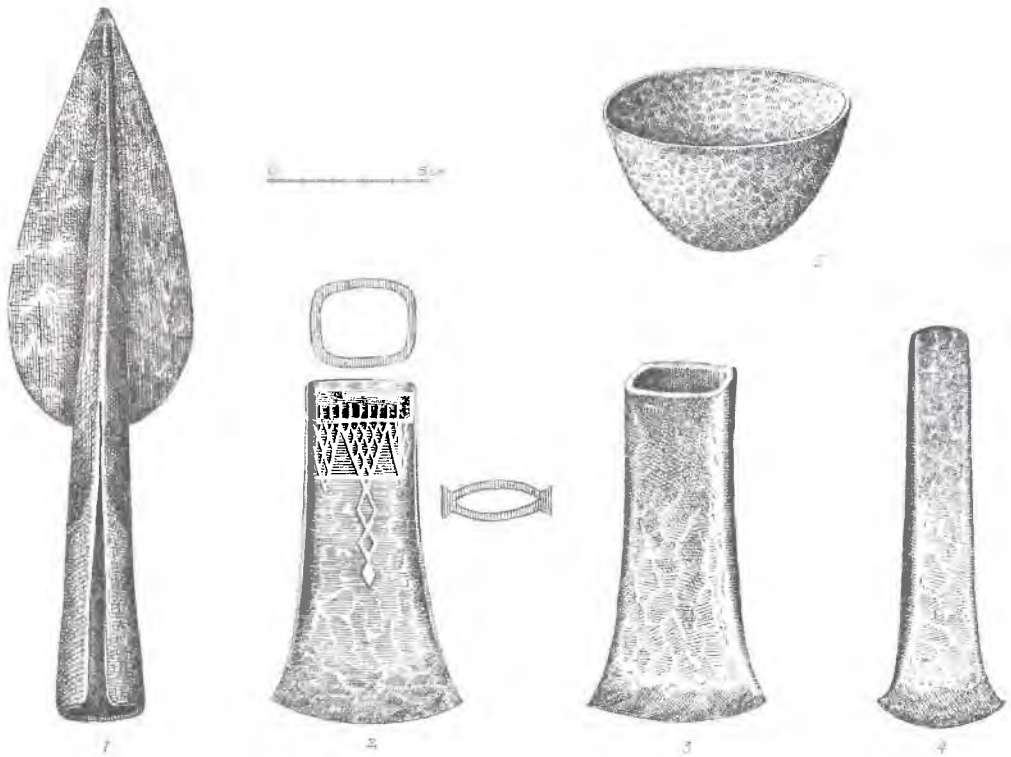


FIG. 443. Bronzes from the cemetery of Ust-Gajva. **1**, spearhead; **2, 3**, celts; **4**, chisel; **5**, copper bowl. *After* Bader and Sokolova, 1953.

(Shmidt, 1927; Prokoshev 1941). New excavations in the cemetery of Turbino I were carried out by Bader in 1958 and 1959 (Bader, 1959d).

The dead were buried extended in shallow pits, the feet oriented toward the river. Graves included fairly rich assemblages of bronze, copper, silver, nephrite, or serpentine, and flint artifacts. Thus the grave of one man contained a bronze shaft-hole axe (pl. 105, *16*), an adze, a chisel (pl. 105, *14*), a dagger blade (fig. 442, *5*), several copper clasps, a silver spearhead (fig. 442, *8*), flint knives (pl. 105, *1-6*), and about ten bifacially retouched flint arrowheads (pl. 105, *7-12*). In another grave, belonging to a woman, lay several silver bracelets (fig. 442, *7*), a large copper awl, and a ring of nephrite (fig. 442, *6*). The Turbino cemetery is the richest in metal of the Kama-Middle Ural area, and its close parallels to metal finds from Sejma in central Russia allow us to consider it as belonging to the Sejma period. In both sites the same types of socketed celts, dagger blades, rings of nephrite, and curved knives have appeared.

A cemetery with graves furnished with bronzes of Sejma-Turbino type was discovered in 1949 not far from Turbino, at the confluence of the Kama and the small Gajva River north of Perm; hence its name, Ust'-Gajva (Bader and Sokolova, 1953a, pp. 135-42). The cemetery was situated on a pine forest terrace, but the graves lay in sand and the skeletons were not preserved. This destroyed cemetery yielded six bronze artifacts: two celts, one decorated, the other not (fig. 443, *2*, *3*), a spearhead with a large leaf and an open socket (fig. 443, *1*), a dagger, a chisel or flat axe (fig. 443, *4*), and a bowl 4 cm high and 8.8 cm in diameter, made from a large piece of copper (fig. 443, *5*). Within the cemetery area there was also found a stone macehead, globular in form, with somewhat flattened sides. The Ust'-Gajva metal finds are considered by Bader (1959b) to be later than Turbino and Sejma. Chronologically the earliest is Turbino, then Sejma, and third Ust'-Gajva.

In addition to the middle layer of the Gorbunovo Section Six site, there is another site, Beregovaja I, located on the eastern edge of the same peat bog, which gives evidence for chronology. The site yielded

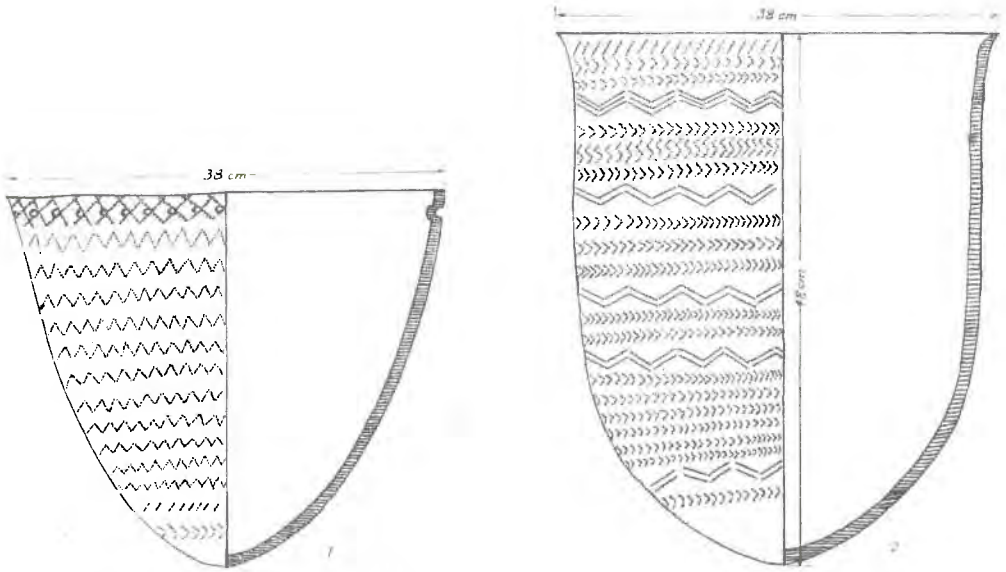


FIG. 444. Classical Turbino pots typical of the Sejma phase (reconstructions). **1**, from the habitation site of Bor 1; **2**, from the habitation site of Borovoe Ozero II. *After* Bader and Sokolova, 1953.

10,000 artifacts during the excavations done by Eding (Eding, 1940a, pp. 14 ff.). In this site, as in the middle layer of Section Six, pots were made of a clay mixed with sand and talc and were light yellow or reddish in color. Most pots had rounded or pointed bases and resembled half an oval. Some, however, were flat-bottomed. Dentate-stamp impressions predominated (fig. 433, *1*), alternating with rows of water birds and some vessels were decorated with meanders (pl. 104, *1*, *2*). Among the flint artifacts were numerous leaf-shaped or elongated rhomboid arrowheads (pl. 104, *7*, *8*), bifacially retouched at the end, small scrapers (pl. 104, *4*), knives (pl. 104, *6*) and burins. Many net sinkers, adzes (pl. 104, *5*), and celts were found; celts were hexagonal in cross-section and some widened to a broad cutting edge. There was also a mold for celts of Sejma type (pl. 104, *3*). Similar finds were made at the site of Beregovaja II, located 400 m south of Beregovaja I and excavated by Brjusov in 1948-49 (Brjusov, 1952).

A number of villages were brought to light and well excavated at the Kama-Chusovaja confluence where they bear the name "Bor" or "Borovoe Ozero", located at Lake Borovoe. Borovoe Ozero II, a village the reconstruction of which has already been shown in figure 430, deserves particular mention.

Borovoe Ozero II located on the sandy elevation of a forested terrace, was excavated in 1950 and 1952 by the Kama Archaeological Expedition (Bader, 1953a, 1953b). The habitation area covered approximately 4000 square meters. Cultural remains were deposited here, as in the other Borovoe Ozero sites, in a sandy layer 30-50 cm thick, lying immediately below the humus; in the dwelling area the cultural layer was as much as 80 cm in thickness. Twelve rectangular semisubterranean dwellings were uncovered, about 6 m square, and each contained a corridor as much as 8.5 m long and 1.5 m wide (fig. 429). Stretching along the center of the dwellings were the remains of two rows of posts on which parallel beams rested, and associated with each house were one or two hearths and waste pits. Some houses were divided into two compartments; to judge by the finds, they may represent men's and women's quarters. Among the stone and ceramic finds there were stone hammers with a narrowed central portion for hafting, a polished stone dagger, polishers shaped like a shoe, one round amber bead, zoomorphic clay figurines found on the floor of the houses, and potsherds. The vessels were like half an oval, had necks which flared slighly and were ornamented by rows of dentate stampings (fig. 444, *2*). The clay had been tempered with an organic substance, although some sherds showed talc tempering: the latter are regarded as imports from beyond the Urals. The amber bead indicates trade with the amber source area on the Baltic Sea.

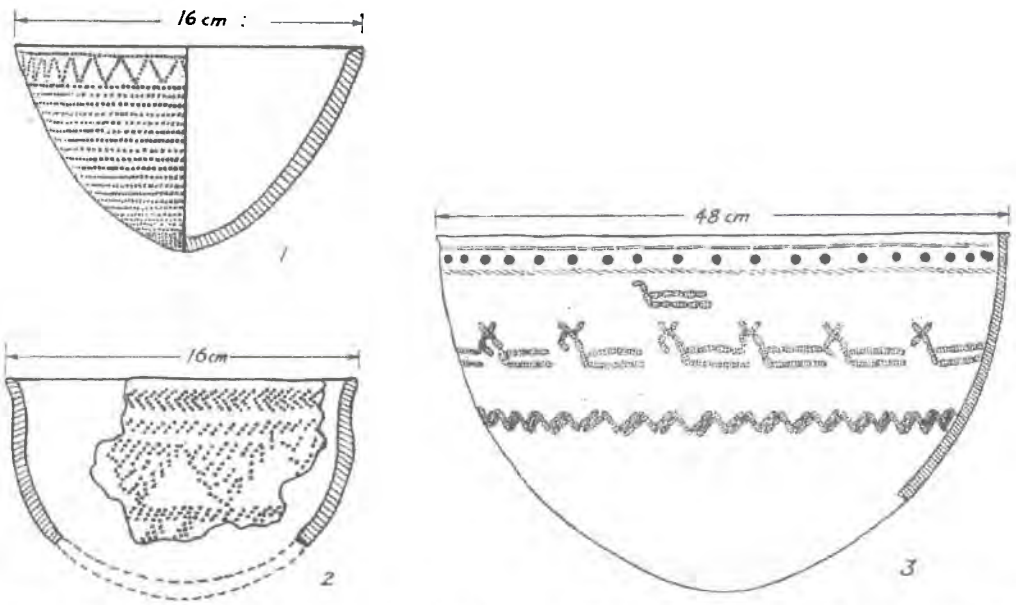


FIG. 445. Classical Turbino pots of the Bor phase on the lower Chusovaja River. 1, 2, Bor II site; 3, Bor III site. *After* Bader, 1954b (1, 2) and 1953b (3).

b. *The Late Classical or Bor phase, ca. 1300/1250 B.C. – ca. 1100 B.C.*

The assemblage of finds successive to Sejma has been discerned by stratigraphic and typological means in the upper Kama-lower Chusovaja area and in northern central Russia.

The type site of this phase is Bor II, excavated in 1947, 1949, and 1950 (Bader, 1951b, 1954b). It was located on the slope of a pine forest terrace along the lower Chusovaja. This site yielded the cultural remains of one phase deposited in a sandy layer from 30 to 65 cm thick. There were no houses, but one large hearth and five fireplaces were found, around which were concentrated flint implements and potsherds. The oval pots of the earlier period did not appear in Bor II; the vessels were lower, and some were round, wide-mouthed bowls (fig. 445). The pots were decorated mainly by dentate stamp impressions, as during the early classical period. No rocker stamping was found on the Bor II vessels, but on some, pit impressions covered the upper part. On one pot was found the so-called flag-shaped ornament known from sites on the middle Volga and east of the Middle Urals. The clay contained an admixture of organic material and the thickness of the pot walls ranged from 5 to 10 mm. Local types of flint tools persisted. Scrapers made on flakes (fig. 446, *10*, *11*) and knives on long blades (fig. 446, *8*, *9*) appear to be the same as those of an earlier period. There were some burins (fig. 446, *7*) and perforator or screwdriver forms as well (fig. 446, *5*, *6*). Bifacially retouched arrowheads resembled an elongated almond (fig. 446, *1-4*). There were stone axes, chisels, celts, hammers, hoes, and dentate stamps for decorating pottery (fig. 447). The closest analogies to this stone and ceramic assemblage are to be found in the following sites (described below): Bor III (Bader, 1953b); Borovoe Ozero IV (Bader and Sokolova, 1953b) and VI (Bader, 1953a); and several other Chusovaja localities. The habitation site of Bor III revealed traces of a long, rectangular semisubterranean dwelling, 18 m × 5 m, containing three hearths ranging from 1.5 to 2 m in diameter. The house had entrances at each end, and two niches with fireplaces along each side. This same type of long, narrow semisubterranean dwelling was uncovered at the habitation site of Borovoe Ozero VI (fig. 448), where the dwelling was 36 m × 6 m.

In northern central Russia related finds were made in the upper horizons of Balakhna in the district

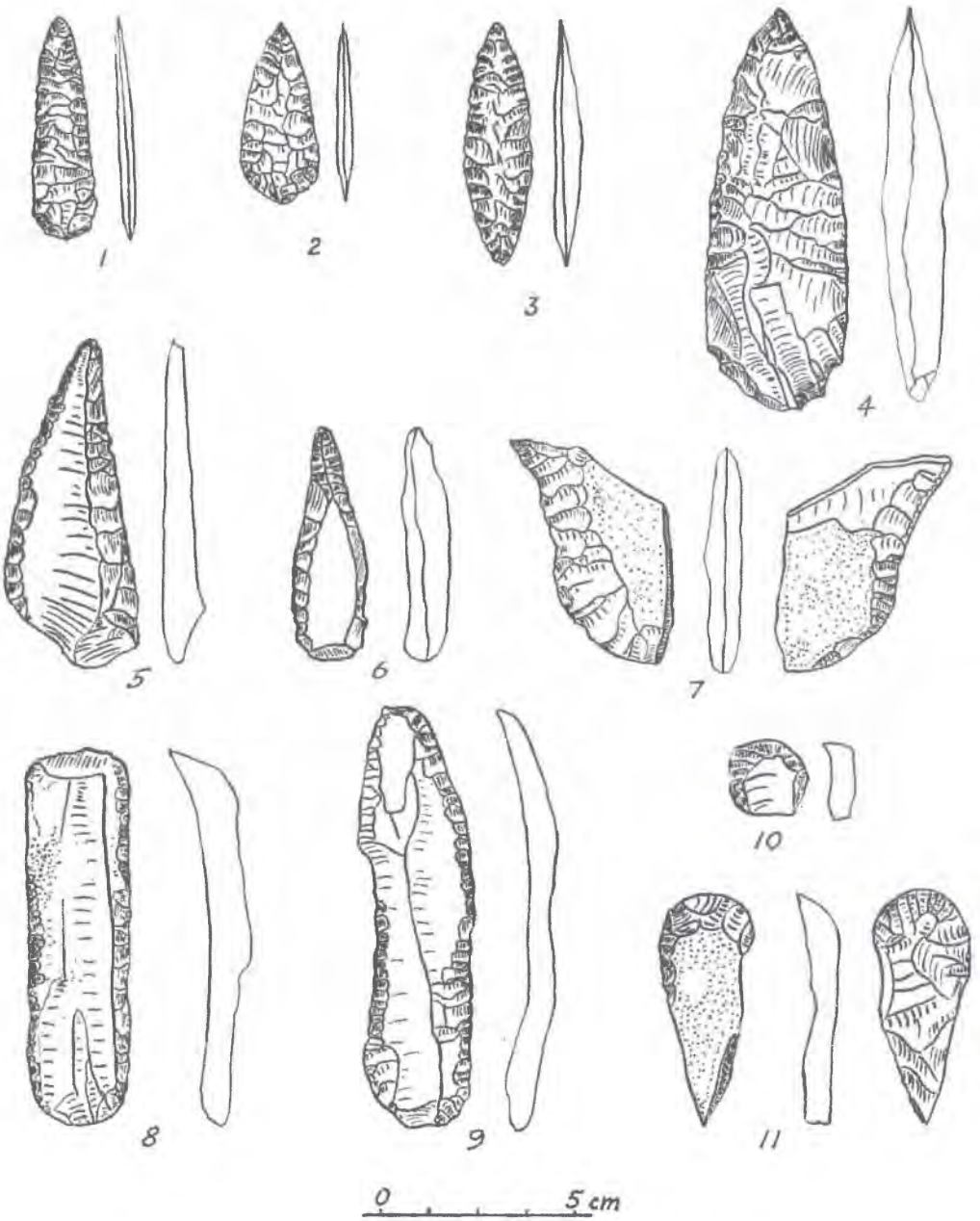


FIG. 446. Flint artifacts from the Bor II site. **1-4,** arrowheads; **5, 6,** perforators; **7,** burin; **8, 9,** knives; **10, 11,** scrapers. *After* Bader, 1954b.

of Gorkij, called the Balakhna B assemblage, and of Bolshe Kozino near Kostroma (Zhukov, 1929). Ceramic materials from the habitation site in Sejma, which is later than the Sejma graves, very probably belong to this phase (fig. 449).

3. *The Late Turbino period, ca. 1100 B.C. – 900/800 B.C.*

Late Turbino is parallel to the late Timber-grave culture. The aggressive character of the latter left its traces on the Turbino culture. Suddenly hundreds of bronze weapons and tools which must have been

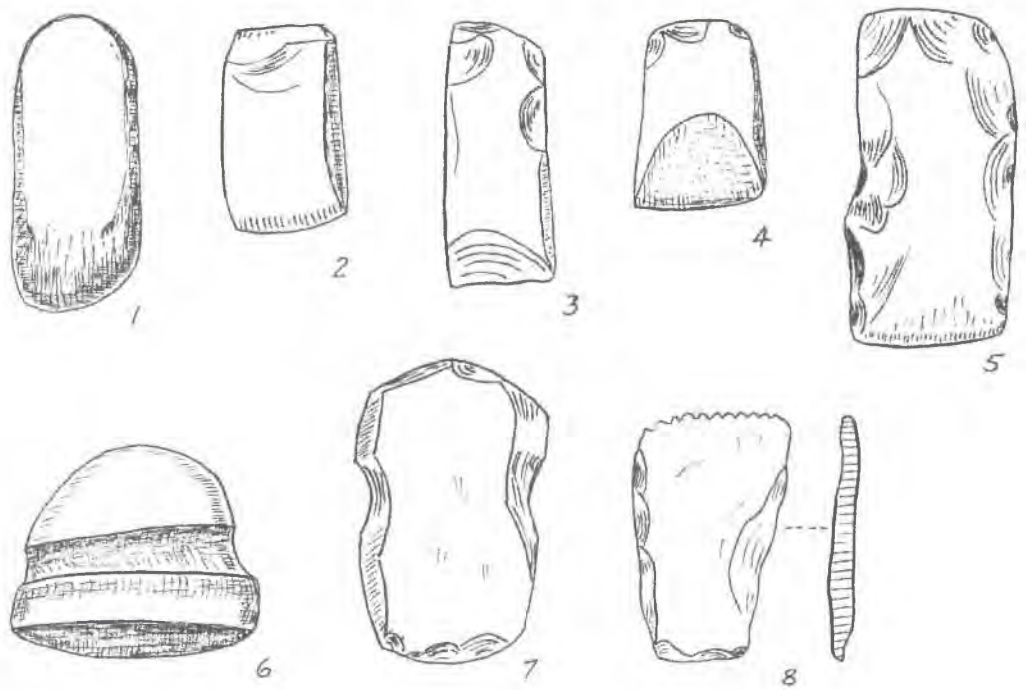


FIG. 447. Stone tools from the Bor II site. **1,** axe; **2,** celt; **3, 4,** chisels; **5, 7,** hoes; **6,** hammer; **8,** dentate stamp for pottery decoration. Scale approx. 1/2. *After* Bader, 1954b.



FIG. 448. Plan of a long semisubterranean dwelling typical of the Bor phase. Length 36 m. Borovos Ozero VI site. **1,** contours of the house; **2,** hearth; **3,** ash pits; **4,** refuse pits; **5,** pots. *After* Bader, 1953a.

brought from the south appeared in the middle Volga, lower Kama, and lower Vjatka basins. Considerable changes in form and decoration of late Turbino pottery are also due to the influence of the Timber-grave culture.

One of the type sites for this phase is Grokhan, because in it were found bronzes, in association with ceramic and stone artifacts, showing relationship to those of the Timber-grave culture. The habitation site is located on the Vjatka River near its junction with the Kama. A socketed celt with two loops (fig. 450, *5*), a tanged spearhead (fig. 450, *3*), a chisel (fig. 450, *1*), a gouge (fig. 450, *4*), a hoe (fig. 450, *2*), and sherds decorated with zigzags, triangles, rhomboids, and pits, with textile impressions on the inside walls, were found in the lower cultural layer of the site which precedes the hilltop settlement of the Ananino period in the same place (Zbrueva, 1947).

Analogous finds appeared in a number of habitation sites on the lower Kama and on the middle

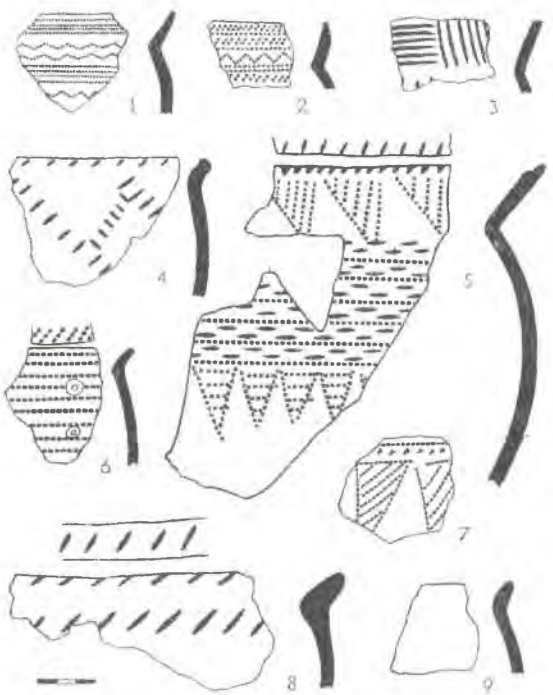


FIG. 449. Pottery from the late habitation horizon of the Sejma site near Gorkij, central Russia. *After* Bader, 1958.

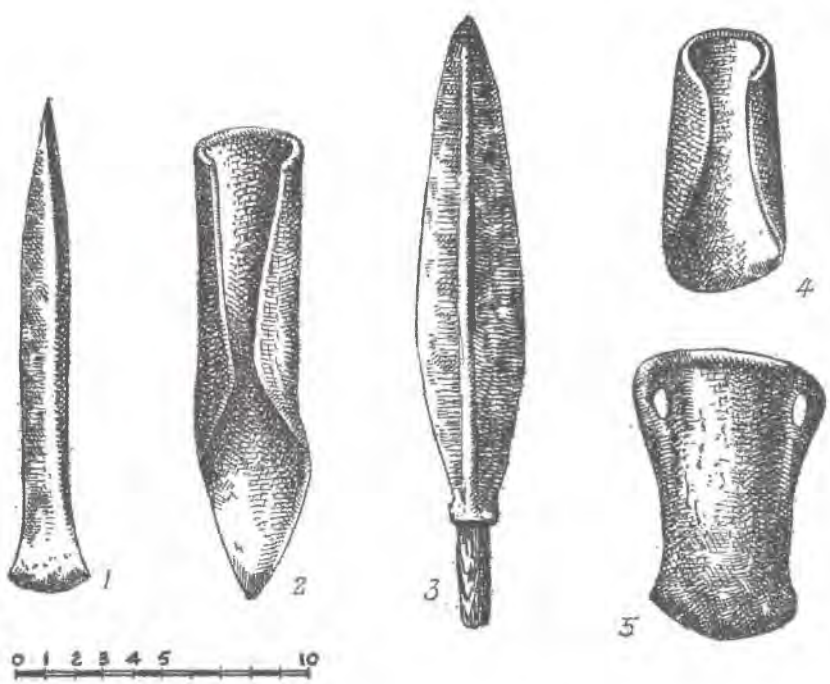


FIG. 450. Copper artifacts from the lower layer of the habitation site at Grokhan, on the lower Vjatka River. **1,** chisel; **2,** hoe; **3,** spearhead; **4,** gouge; **5,** socketed celt.
After Zbrueva, 1947.

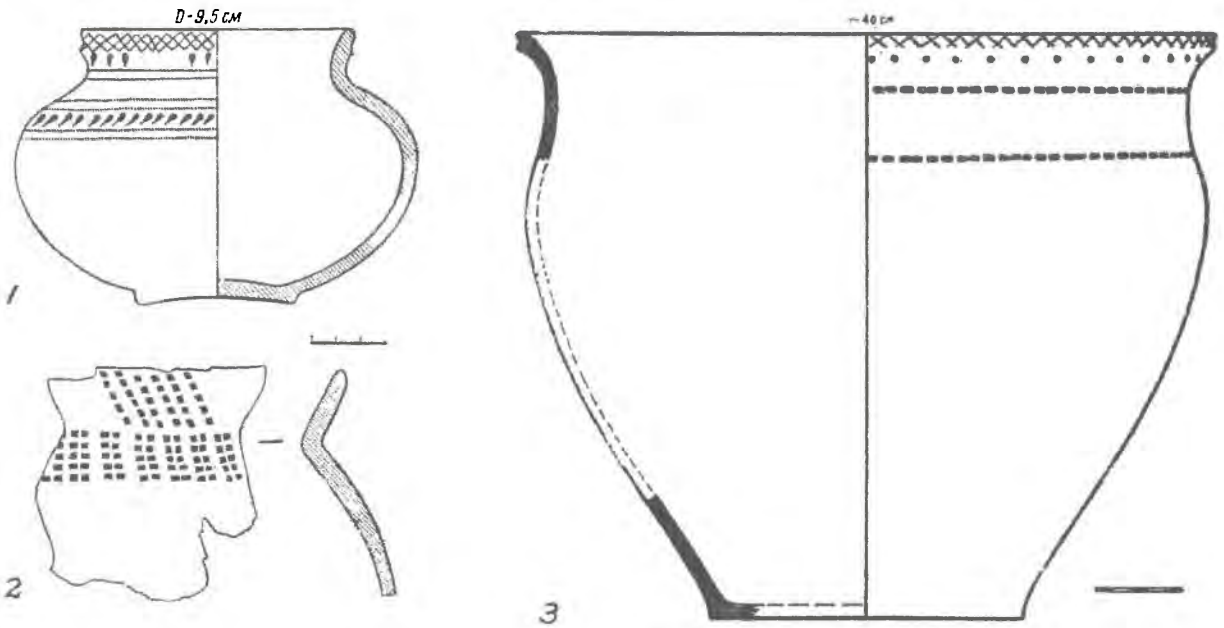


FIG. 451. Late Turbino pots. **1, 2,** Erzovka site; **3,** Zabojnoe, upper level. Middle Kama. *After* Bader, 1959b **(1, 2)**, and 1959a **(3)**.

Volga, south of the city of Kazan. Outstanding sites are Lugovo on the Kama River near Elabug (2 km east of Ananino) with six semisubterranean interconnected dwellings (Zbrueva, 1952, pp. 191-93) and the Ananino site, located on a dune close to the place where the well-known Early Iron Age cemetery was found (Zbrueva, 1952, pp. 1959-6). Both yielded copper gouges, socketed celts, spearheads, and large numbers of flints and potsherds. Valuable information about life during the late Turbino period has been obtained from the 1950-52 excavation in the vicinity of the city of Kazan (Kalinin and Khalikov, 1954). Here habitation sites such as Kartashikha I and II, Atabaevo I, Otary, and others yielded plenty of evidence on habitat and economy. In the north, in the upper Kama-lower Chusovaja area, the late Turbino assemblage has been stratigraphically discerned. It followed the Bor phase in the habitation sites of Bor IV and Borovoe Ozero VI (Bader, 1954a). In the classical Turbino village at Zabojnoe near Okhansk a flat-based, S-profiled pot (fig. 451, *3*) and a plain bronze celt were found in the filling of one of the semisubterranean dwellings. In the typological sequence of the Kama-Chusovaja sites this type of pot is called "Erzovka" after the habitation site on the high bank of the Kama near the village of Chastye between Okhansk and Sarapul (Bader, 1959b) which yielded similar flat-based pottery (fig. 451, *1, 2*). In the west related finds are known from the lower Oka area (Lipki near Vladimir: Zbruev, 1929).

Late Turbino was an accomplished metal culture. In addition to the imported artifacts spearheads, socketed celts, and dagger blades of late Timber-grave type many locally made tools of everyday importance, such as knives, awls, and needles, were found. Crucibles and slag found in the villages indicate local metallurgy (Kalinin and Khalikov, 1954).

Primitive hoe-farming and animal domestication were introduced during the classical period, but it was only during late Turbino that stockbreeding became predominant. Bones of domesticated animals included those of horses, cattle, pigs, sheep, and goats. Wild animal bones, elk, hare, boar, and dog, were not numerous, although they are present in almost every site. From this it can be seen that the main supply of meat products was not game but domesticated animals. Impressions of millet grains on pottery in the Lugovo habitation site, hoes made of large split tubular bones, stone pestles, broad flint sickles which are probable imitations of metal sickles of Sosnovaja Maza type, rubbing stones, and large flat quernlike stones indicate agriculture. The almond-shaped, elongated triangular flint arrowheads, flint scrapers, celts, gouges, etc. continued to show archaic traits.

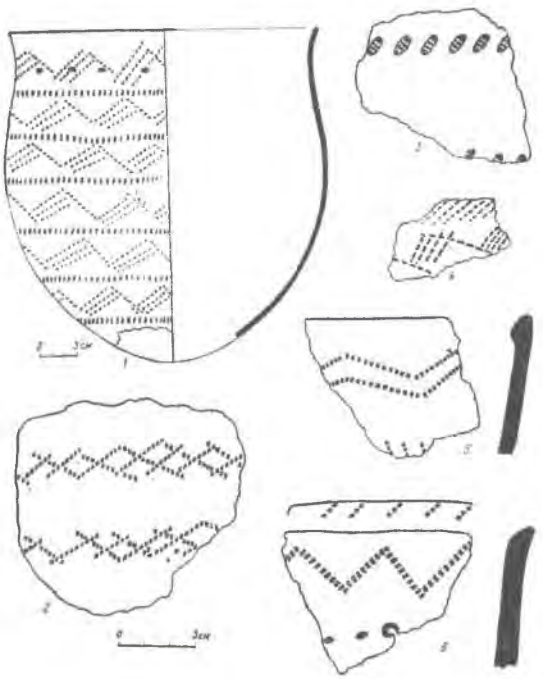


FIG. 452. Late Turbino pots from the post-Bor horizon.
Borovoe Ozero III site, upper layer.
After Bader, 1954a.

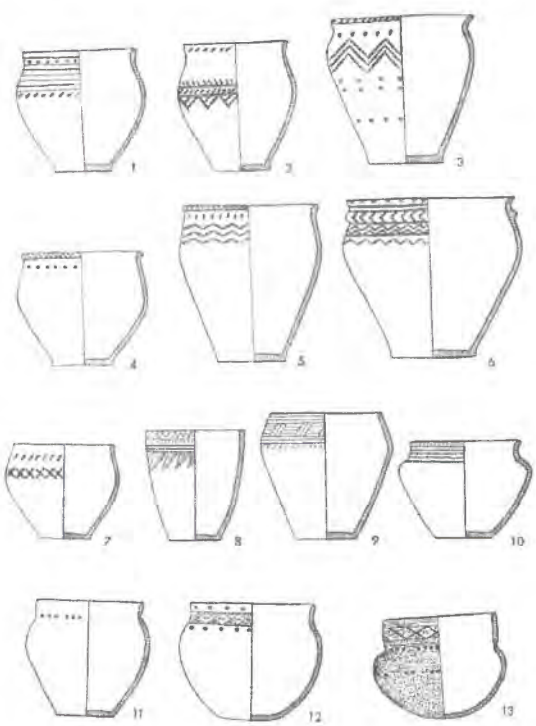


FIG. 453. Late Turbino pottery of Kazan type from Kartashikha I **(1, 2, 6, 9, 13)**, Kartashikha II **(7, 11)** and Atabaevo **(4, 5, 8, 10, 12)** sites. Scale 1/5. *After* Kalinin and Khalikov, 1954.

Flat-based pots now prevailed. Rounded bases were rare in the sites on the lower Kama-middle Volga; the Chusovaja River people seem to have continued ancient traditions for a longer time and continued to make their pots with rounded bases (fig. 452, *1*). The dominant pot form was a simple vessel with a wide mouth, outwardly curved rim, and rounded shoulders, ornamented over the upper part with dentate stamp impressions, incisions, pitting, and sometimes horizontal cord impressions. The most frequent decorative motif was a band of diagonal or zigzag incisions or impressions (figs. 451, 453). The "flag-ornament" is rather typical of the upper and lower Kama sites (fig. 452, *1*). Diagonal and intersecting diagonal incisions and ridges around the top (fig. 453, *6*), are quite similar to the late Timber-grave pottery decoration. On the other hand, pottery from the Kama River basin shows a close relationship to pottery in northwestern Siberia. A striking similarity can be seen between pots of the Lugovo site and pots of the upper layer of the Susgun site near Tobolsk, far beyond the middle Urals (Zbrueva, 1952, p. 193; Chernetsov, 1953, p. 50). Even during this late Turbino period pottery was not well fired. It was yellowish, and black in section only on the surface. Pots were probably fired on open hearths.

The villages continued mostly to be arranged on the lowest river or lake terraces, but some, like Erzovka, were on high riverbanks. In some cases houses were connected with one another as during the classical period. Four roughly rectangular dwellings, joined by a short corridor, were discovered in the site of Kartashikha I (fig. 454). Another village, Kartashikha II, presumed to be of a somewhat later date than Kartashikha I and found only about 50 m from it, yielded two isolated houses. It seems possible that during this period the village type changed from interconnected houses to isolated houses, but in

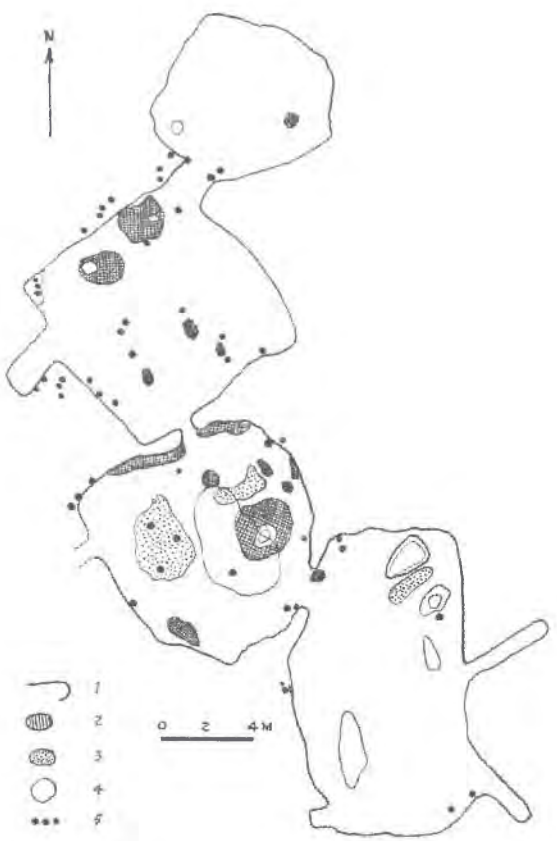


FIG. 454. Plan of four interconnected houses from the excavated village Kartashikha I, middle Volga area, south of Kazan.
1, limits of the dwellings; **2,** hearths; **3,** sand; **4,** pits; **5,** postholes.
After Kalinin and Khalikov, 1954.

TABLE VI

Chronological classification of the Turbino culture

Approximate date		*Phases (type sites)*	*Northern Central Russia*	*Middle Volga-Lower Kama area*	*Upper Kama-Lower Chusovaja area: Middle Urals*	*Economy; Habitat*	*Pottery*
ca. 800 B. C.							
	LATE	Erzovka	Lipki	Lugovo Ananino dune Atabaevo I Kartashikha I & II	Bor IV (upper horizon); Borovoe Ozero VI (upper horizon).	Intensive metallurgy and trade. Food- production. Interconnected and isolated houses.	Flat-bottomed pots predominate. Round-bottomed types continue in the north. Decorated over the upper part. Ornamentation: bands of incisions, pits, dentate stamp and cord impressions. Tempered with sand, crushed shells, chamotte. Late Timber-grave influences.
		Grokhan		Grokhan	Erzovka		
ca. 1100 B. C.							
	CLASSICAL	Bor	Balakhna B Bolshe Kozino Sejma habitation site		Bor II Bor III, Bor IV lower horizon) Borovoe Ozero IV and V	The same economy continues. Long houses appear in the upper Kama-Chusovaja area.	Large and small pots of wide-mouthed bowl form with rounded bases. Tempered with organic substance. Dentate impressions over all the pot or the upper part. Bands of elk figures.
ca. 1250 B. C.							
		Sejma	Sejma cemetery Podboritsa- Shcherbininskaja Kholomonikha	Zajmishche III (lower)	Ust'-Gajva Borovoe Ozero II Borovoe Ozero I Middle Gorbunovo in Section Six Beregovaja I Turbino	Large scale commercial relations. Beginning of food-production and local metallurgy. Hunting prevails. Interconnected houses forming compact villages.	Pots of half an egg-shape with outward curving lip. Flat bases appear in the middle Volga-lower Kama area. Clay tempered with organic substance (west of the Urals), or talc (east of the Urals). Decorated with dentate impressions of geometric motifs (chiefly zigzags) over all the pot. Water bird and elk figures appear. Andronovo and Abashevo elements east of the Urals.
ca. 1500 B. C.							
	EARLY	Volosovo	Panfilovo, Volodary (upper) Volosovo Volodary (lower) Vladychino	Sumskaja Observatorja III (upper horizon)		Hunting-fishing. Trade in stone tools. Interconnected rectangular houses appear.	Large pots of half an egg-shape with outward curving lip; some have slight S-profile. Clay tempered with sand, crushed shells, chamotte, or some organic substance. Decorated with dentate rocker stamp, bands of pits, whipped cord impressions. Fat'janovo-Balanovo influences in northern central Russia.
ca. 1800 B. C.							
		Levshino	Balakhna A	Observatorja III (Middle horizon) Lukovskaja Zajmishche III a & V Russko-Lugovskaja Zharenyj Bugor	Levshino Nizhne and Verkhne Adishchevo Bazov Bor (lower horizon) Lower Gorbunovo in Section Six	Hunting-fishing. First metal appears. Rectangular semisubterranean houses appear.	Large pots of half an egg-shape with rounded bases. Clay tempered with sand or talc. Decorated with dentate rocker stamp (predominant), pseudo-cord impressions, wavy lines, pits.
ca. 2000 B. C.							

general, house construction remained the same. Some houses were divided into two compartments. This was observed in a dwelling of the site Atabaevo I on the lower Kama. The house had two depressions, an eastern and a western one, with separate hearths. In the eastern section there were 30 small flint scrapers, clay and copper beads, a dish containing red ochre pigment, etc.; in the western, three arrowheads, a fragment of a copper knife, fragments of crucibles with remains of copper, net sinkers, and other artifacts. From the nature of the finds the excavators assumed that the eastern part of the dwelling belonged to women, the western to men (Kalinin and Khalikov, 1954, p. 179). Below the southern corner of the house the skull of a horse was found which apparently was laid there deliberately at the beginning of construction, suggesting horse sacrifice. No late Turbino cemeteries have yet been found.

To conclude this description of chronological phases a résumé is given in tabular form (table VI).

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XII

CULTURES IN THE NORTHEASTERN BALTIC AREA AND NORTHWESTERN RUSSIA

Metal objects penetrated this European periphery about the middle of the second millennium B.C., hence the "Bronze Age" here is considerably shorter than in any other culture in the south.

During the first part of the second millennium B.C. the Comb- and Pit-marked pottery culture of hunter-fishers dominated the area except for areas where the southern food-producers, the Corded or Battle-axe people, settled, as in the East Baltic area and southwestern Finland. In a number of sites in Latvia and Estonia, late comb-marked pottery was found together with corded pottery. As in central Russia, food-producers lived here alongside the local hunter-fishers. What happened during the succeeding period? Which people obtained possession of the northern East Baltic territory?

From what we can deduce from present data, there were several different cultural groups and developments in the East Baltic area and in the northern parts of Russia and Karelia. In the East Baltic area, the Corded culture of the intrusive food-producers persisted during the period which is the Early Bronze Age in the southern Baltic area. Comb-marked pottery disappeared, and in its place, alongside late corded or Early Bronze Age Baltic pottery, textile-marked pottery, which seems to be of eastern origin, appeared. Textile-marked pottery has also been noted in the Leningrad area and southern Karelia. In the north, however, the local Comb-and-Pit-marked Pottery culture continued. Because of the considerable amount of asbestos in the potsherds, the northern Finnish-Karelian group is usually called the Asbestos Pottery culture. In southwestern Finland, out of the amalgamation of Corded and Comb-and-Pit-marked Pottery cultures grew a new variant called "Kiukais".

1. *The Textile Pottery group*

Valuable data for the culture sequence in the northeastern Baltic area was obtained from stratified sites in Estonia, particularly from recently excavated ones such as those at the mouth of the Emajögi River and Akali on Lake Peipus (Jaanits, 1954a, 1959). From these and a number of other habitation sites it is evident that the sub-Neolithic Comb-marked Pottery culture of hunter-fishers had a long development. At least three strata were worked out, represented by the earliest or Narva pottery, then classical Comb-and-Pit-marked, and finally Late East Baltic Comb-marked pottery. The early corded pottery appears at the end of the Comb-marked Pottery culture. Somewhat later than the corded pottery comes textile pottery, which is completely different from corded and from comb-marked pottery. Textile pottery persisted into later periods along with East Baltic corded pottery. The latter developed into pottery decorated predominantly with horizontal grooves as in the southern Baltic area during the sixteenth-fourteenth centuries B.C. (pl. 80). The following and latest stratum in the Estonian sites Akali and Kullamägi disclosed the later type of textile pottery, decorated with randomly impressed pits and stamps. No continuity of Baltic type finds could be established. From this stratigraphy it is obvious that textile pottery became the dominant type during the later part of the Bronze Age. The pots were flat-based, well fired, and tempered with crushed stone. The same type of culture continued during the Early Iron Age period.

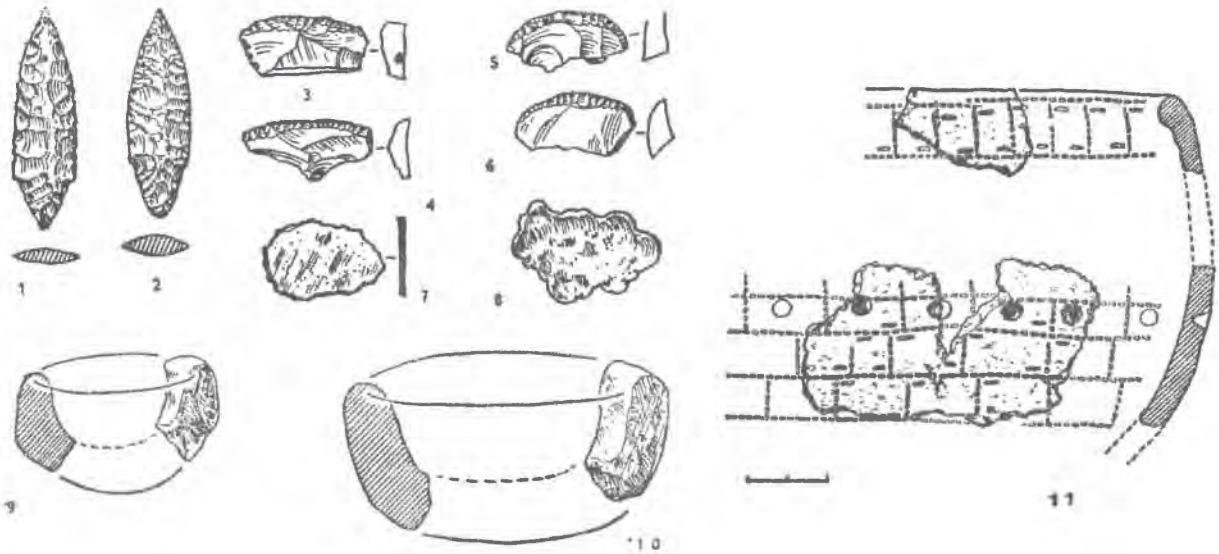


FIG. 455. **1, 2,** flint arrowheads, **3-6,** scrapers, **7, 8,** copper ingots, **9, 10,** crucibles and **11, 12,** sherds from Textile-marked Pottery sites of Ust-Rybezhno II and Pod-Sopkoj, Volkhov River basin, northwestern Russia. *After* Gurina, 1959.

A series of sites with textile pottery has been recently brought to light in the Leningrad area and in the eastern Karelian forests (Gurina, 1953, 1959). In contrast to the Comb-and Pit-marked Pottery sites located near lakes in low places, the Textile Pottery sites were considerably higher, usually on dunes, and sometimes quite far from a river. This difference in locations gives us a criterion for chronology. Recent excavations on the Volkhov River have shown that Textile sites were located not lower than 15-18 m. At Ust'-Rybezhno on the small Pasha River, the Neolithic site was found at the river, while the Bronze Age site, called Ust'-Rybezhno II, was about 0.5 km from the river. Finds made in these sites were chiefly sherds with surfaces impressed with textiles (pl. 109, *5-13*); some are decorated with zigzag lines with impressed dentate stamping (pl. 109, *8*, *12*) and with some pits impressed from the outside or inside (pl. 109 *5-7*, *9*, *10*). There also were clay whorls (pl. 109, *3*, *4*), perforated stone axes (pl. 109, *2*), and whetstones (pl. 109, *1*), but there were no stone artifacts typical of northern Russia during the Comb-and-Pit-marked Pottery culture. The flint arrowheads from the Leningrad sites were leaf- or almond-shaped (fig. 455, *1*, *2*), reminiscent of the arrowheads of the Bor phase of the classical Turbino culture (fig. 446, *2*, *3*).

The Textile Pottery culture in northwestern Russia and the East Baltic area could not have evolved either from the Corded or from the Comb-marked culture: it is distinctly foreign. Analogies with Textile Pottery have been found at the Upper Volga-Kostroma River area sites (Voroksa, Borani, Stanok and others in the Kostroma River basin: Tret'jakov, 1941, pp. 16 ff.). Unfortunately, this central Russian area is not well explored and the chronological position of Textile sites is not known. Stratigraphically these Textile sites are proven to be later than the central Russian Pit-marked pottery culture and earlier than the Djakovo hill-fort culture of the Iron Age. Migration from central Russia to the East Baltic and Leningrad area is the probable explanation. The detailed story of this westward expansion will be clarified when more stratified sites in the upper Volga area are discovered. The general character of Textile culture seems, however, to be very much related to that of Turbino, and the Textile Pottery group in central Russia may well have been a western branch of the Turbino culture. The east-west flow of cultural elements is documented by flint tool types, by animal and bird sculptures of flint, stone, or wood, and by some decorative motifs on pottery. The stylized water bird figures impressed by a dentate stamp on pots from the Ust'-Rybezhno site, reproduced in figure 455, *11*, are reminiscent

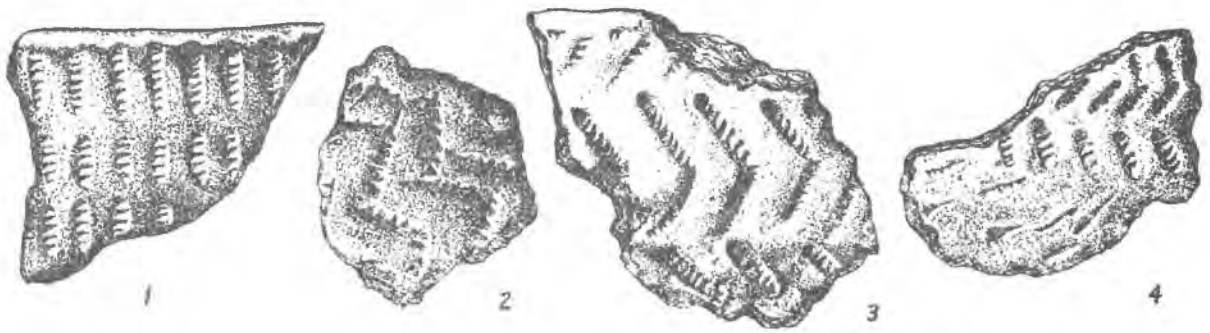


FIG. 456. Asbestos pottery sherds from the Orov Guba habitation site on Lake Onega. *After* Gurina, 1951.

of the impressed water-bird figures on pots of the Sejma and Bor phases of the classical Turbino culture. In northern and central Russia the Textile Pottery culture continued for a long period. Its presence from the first part of the first millennium B.C. has been proven by a number of sites, and its existence up to and throughout the eighth and seventh centuries B.C. is well shown by association of textile impressed pottery with Mälar type celts or their imitations.

2. *The Asbestos ware group in eastern Finland, northern Karelia, and northern Russia*

Following the Comb-and-Pit-marked Pottery period there occurred a long period typified by asbestos tempered pottery. The pots were very large, straight-walled (pl. 110, *b*), and usually round-bottomed. They were thinner-walled than during the Comb-and-Pit-marked Pottery period, and the lip was thickened and curved inwards (pl. 110, *b, g*). The decorative technique was dentate stamping in parallel horizontal rows or zigzags (pl. 110, *d, g*; fig. 456), impressions made by cord-wrapped dowel and sometimes by a sharp instrument. Some pots were textile-impressed and some were undecorated save for twig-brushing over the surface or scraping with a dentate instrument (pl. 110, *c, f, h, i*).

The type sites for the Asbestos ware culture in eastern Finland and Karelia are: Pöljä, district of Sülingjärvi, northern Savo province, Voj-Navolok No. 7 on the northeastern shore of Lake Onega; and Orov Guba also on Lake Onega, 30 km south of the town of Povenets.

The habitation site at Pöljä yielded two cultural layers: an earlier one with classical comb-and-pit-marked pottery (99.5 m above sea level) and a later one with asbestos pottery, 2 m lower than the earlier one (in accordance with the land emergence). The asbestos pottery contained 22 per cent asbestos by weight. In association with the pottery (pl. 110, *b*) were a flat slate chisel, a spool-like slate sinker (pl. 110, *a*), a quartz scraper, and numerous fragmentary stone tools (Meinander, 1954b, p. 162). The chronological position of the pottery of Pöljä type is shown by its association with Corded Pottery finds in several sites of western Finland: Häyrynmäki, Väntsi, (pl. 110, *f-l*), Pitkäjärvi (pl. 110, *c-e*), and Puolijöki (Meinander, 1954b, p. 165). Its date must be within the first half of the second millennium B.C.

One of the richest sites is Voj-Navolok No. 7, excavated in 1923-33. Ceramic and stone finds were clustered in two concavities, the remains of rectangular semisubterranean dwellings. One of the dwellings was 2.5 × 3.4 m measured at the bottom, the other 3.0 × 3.0 m. The dwellings were sunk about 0.6 m into the ground. The pots were of the typical asbestos sort, round-based, large pots decorated with diagonal rows of short comblike impressions. Some pots, however, were flat-based, small, and barrel-shaped. The stone industry was represented by small flat celts, chisels, and arrowheads made of hornstone. There were neither flint nor metal artifacts (Gurina, 1951, pp. 129-31).

The habitation site at Orov Guba is distinctive because of evidence of metallurgy. The site was on a

terrace close to the lake, 7 m above the present lake level. Because of partial destruction of the terrace, a salvage excavation of 32 square meters was carried out here in 1940. The cultural layer was 20 cm thick. Only a few stone artifacts were found – several fragments of quartz artifacts, one flint flake, and a massive polished stone slab. Metal slag and run-off appeared in abundance. The potsherds were of Asbestos type decorated with short comblike impressions (fig. 456). All the sherds were reddish rather than the usual gray. The most valuable find at this site was a furnace, unfortunately partly destroyed. Three granite slabs about 30 cm high, 30 cm wide, and 3-8 cm thick, which served as three of the four walls of the furnace remained, but the fourth wall had been disturbed during the destruction of the site and was found elsewhere on the terrace slope. The furnace was boxlike, slightly lowered in the ground. Within it there was a second wall built of thin granite slabs. The corners had been daubed with clay. On the bottom was a flat slab on which lay a piece of slag with a cavity in the middle resulting from the smelted metal. Within the smelting furnace was a considerable amount of charcoal, ashes, and ore. Pieces of ore were also found in the cultural layer along with potsherds. The site is believed to have been mainly a foundry. The scanty finds and the thin cultural layer indicate a temporary occupation. Analysis of the ore showed an iron content consistent with local deposits in bogs (Gurina, 1951, pp. 131-35). That local metallurgy existed here is uncontestable. Unfortunately, the number of bronzes is still too small to show the types of artifacts produced.

Comparison of stone artifacts and the method of pottery decoration allows us to place the Asbestos ware phase about contemporaneous with the Kiukais complex and the subsequent early part of the Bronze Age in southwestern Finland. On pottery of both assemblages appear cord-wrapped dowel and textile impressions. The stone assemblage of the Asbestos ware sites cannot be anything else than the typological successor of the Comb-and-Pit-marked Pottery culture. The sites of Salo in the district of Hankasalmi and Vehkaranta in the district of Kerimäki, Savo province, Finland, yielded asbestos pottery with Andronovo-Abashevo decorative elements (Ailio, 1909, I, p. 91; II, p. 17; Tallgren, 1937, p. 45; Meinander, 1954a, p. 180). The appearance of the meander pattern on asbestos pottery (pl. 111) bears witness to eastern influence. This motif appears on Abashevo and Andronovo pots (cf. fig. 423) in the southern Ural area during the third quarter of the second millennium B.C. The same motif also appeared in the middle Ural area (cf. ornamentation on pots of the Beregovaja I site, Gorbunovo peat bog, pl. 104 *1*, *2*, found in association with a mold for Sejma-type celts). The same influence is evident in pottery decoration in many other sites of Fennoscandia (Ailio, 1909, II, p. 185; Ayräpää, 1952, p. 78). This wave of eastern influence must have occurred simultaneously with the east-west spread of Sejma celts. Wooden sculptures of water birds and elks of the middle Ural area and of Karelia show a striking similarity to each other which could occur only due to close contact between Karelia, northwestern Russia, northern Fennoscandia, and the middle Ural area.

The Asbestos ware phase seems to have lasted a fairly long time as can be seen from the only slight variations in pottery decoration and in stone tools in the Finnish and Karelian sites. In its later phase, textile impressions became frequent. In the future, finds especially of bronze artifacts which we expect at this time but which as yet have not been discovered will no doubt enable us to discern several subphases. Asbestos tempering of pottery continued to be used in the first millennium B.C. but in much smaller quantities. The name "Asbestos ware" is, therefore, used only in a narrow sense, as the designation of pottery of a period succeeding the late Comb-and-Pit-marked Pottery in the second millennium B.C.

Metallurgy was practiced even in the White Sea area. It is documented there by clay molds. At the site of Durakovo, a clay mold for a socketed celt was found in association with a flint figurine of a bear (Gimbutas, 1956, p. 187; fig. 110, *1*; Foss, 1947a, pl. I, *14*). Sites on the coasts of the White Sea, such as Galdareja, Ust'-Jarenga, and others (Smirnov, 1940; Foss, 1947a), which have yielded great quantities of flint artifacts (chiefly arrowheads and spearheads), and pottery decorated with dentate stamping, may well belong to the period corresponding to the last phase of the Bronze Age in the first part of the first millennium B.C. Kuznechikha, a habitation site in Arkhangelsk, yielded pottery decorated pre-

dominantly with rows of impressions made with a sharp instrument, and with rhomboid and small pits. The pot walls were quite thin, but the lip was considerably thickened. Pollen analysis indicates a Sub-Boreal period date (Smirnov, 1941).

3. *The Kiukais group in southwestern Finland*

In southwestern Finland we find a peculiar cultural amalgam, the "Kiukais culture", named so after the habitation site of Uotinmäki in the district of Kiukainen, Lower Satakunta (Ailio, 1909). Ceramic and stone artifacts show both Corded Pottery and Comb-and-Pit-marked Pottery elements. The pots look as if they had evolved from the Corded type; they had flat bases and were decorated with deep horizontal and diagonal incisions, pits, dentate stamp impressions and sometimes cord impressions (fig. 457). Numerous perforated stone axes and boat-axes, some made of diabase, typical remnants of the Corded Pottery culture (fig. 458, *4*), were found. The occurrence of quern-stones (fig. 458, *5*) gives witness to food-production. However, the major item of stone tools were typical of the Comb-and-Pit-marked complex. Chisels (fig. 458, *2*), scrapers (fig. 458, *3*), gouges, rhomboid or oval weapons with perforations, some with animal head decorations at the butt-end, and net sinkers (fig. 458, *1*), are forms inherited from the Comb-and-Pit-marked culture. Naturally, this kind of mixed assemblage evoked long discussions over the origin of the Kiukais culture. Is it the continuation of the Corded (Boat-axe) culture, or is it an outgrowth of the Comb-and-Pit-marked culture, strongly influenced by the food-producers? In his monograph specially dedicated to the Kiukais group, Meinander came to the conclusion that its roots probably lie in the Comb-and-Pit-marked Pottery culture (Meinander, 1954b). The food-producers of southern origin seem to have merged with the local hunter-fishers but left their own imprint on further cultural development in this area.

From Corded elements on Kiukais pottery it is evident that the beginning of the Kiukais period must be later than the earliest Corded Pottery culture in southwestern Finland. It lasted during the period which is Early Bronze Age in the south, as is shown by the presence of flint daggers and sickles of Scandinavian origin in the Kiukais complex. Such daggers belong to the Northern Area stone cist and flint dagger period, contemporary with classical Únětice (*ca.* 1650-1550 B.C.). Several chronological phases of the Kiukais complex will be no doubt worked out in the future. On the basis of Corded elements on Kiukais pottery and the date of the appearance of Northern Area bronzes in southwestern Finland, the Kiukais culture should be put within the limits of *ca.* 1700 and *ca.* 1400/1300 B.C. (Meinander's date is *ca.* 1600-*ca.* 1200 B.C., which seems somewhat too low).

4. *The Stone-Barrow culture of the Late Bronze Age in western Finland and Estonia*

a. *General Characteristics*

This group occupied the eastern coasts of the northern Baltic Sea (fig. 459) and it has very close ties with the other side of the Gulf of Bothnia, in eastern Sweden. It is distinct in its thousands of stone burial mounds and its bronzes which originated in the Northern Area Bronze Age culture, arriving via southern Sweden. This coastal region influenced by the west stands in contrast to inner Finland, Karelia, and northwestern Russia which belong to the eastern sphere of influence.

Although in the last centuries of the second millennium and the first half of the first millennium B.C. bronze weapons, tools, and ornaments appeared in the stone barrows, and bronze ingots, clay or soapstone molds were plentiful in some of the habitation sites, the general level of culture did not differ much from that of the pre-metal period. The majority of sites yielded merely pottery, and stone, antler

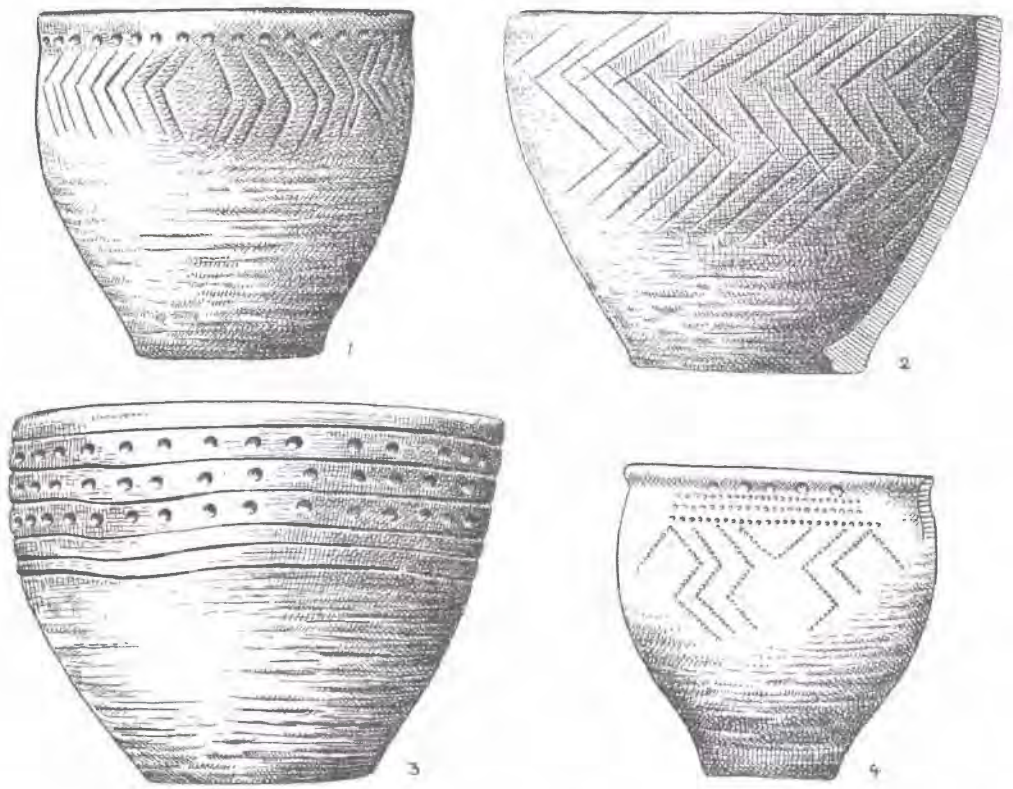


FIG. 457. Pots of Kiukais type from the sites of southwestern Finland. **1,** Kärsämäki; **2,** Sepänjärvi, Sarsa, Ksp. Kangasala; **3,** Jordbro, Ksp. Dragsfjard; **4,** Rainesåsen, Ksp. Pörtom. Scale approx. **1, 3,** 1/3; **2,** 1/2; **4,** 1/5. *After* Meinander, 1954b.

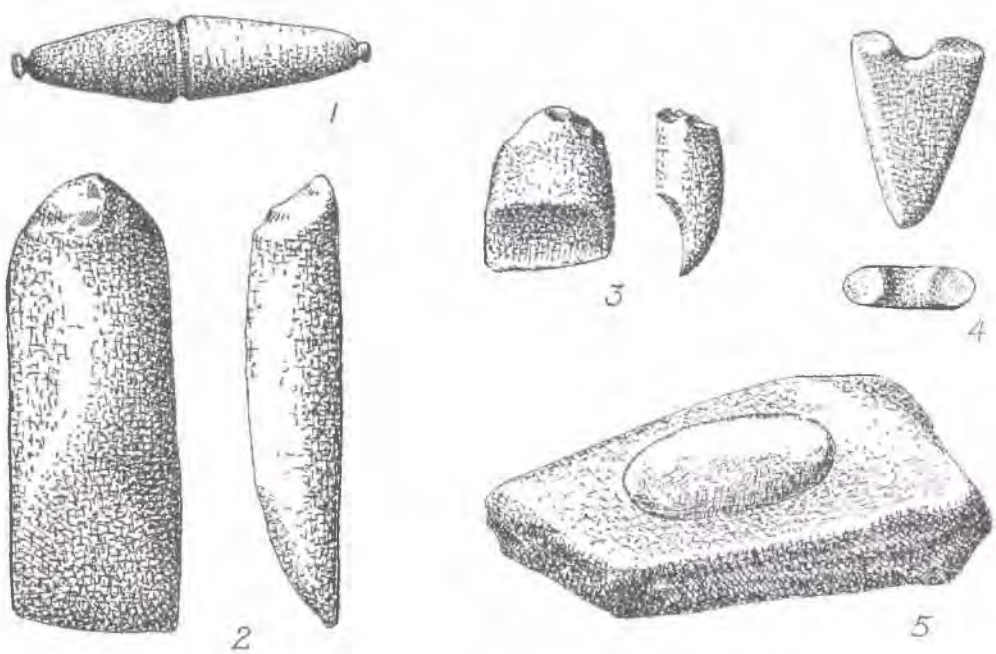


FIG. 458. **1,** net sinker from Uotinmäki in Kiukainen; **2,** chisel from Sjundeå, Nyland; **3,** scraper from Karsämäki, district Maaria; **4,** fragment of a perforated axe from Pori in Kiukainen; and **5,** quern and rubbing stones from the site of Uotinmäki (Sorto), district of Nakkila, Finland. Scale: **1,** *ca.* 2/5; **2,** *ca.* 1/2; **3,** *ca.* 2/3; **4,** *ca.* 1/3; **5,** *ca.* 1/6. *After* Meinander, 1954b.

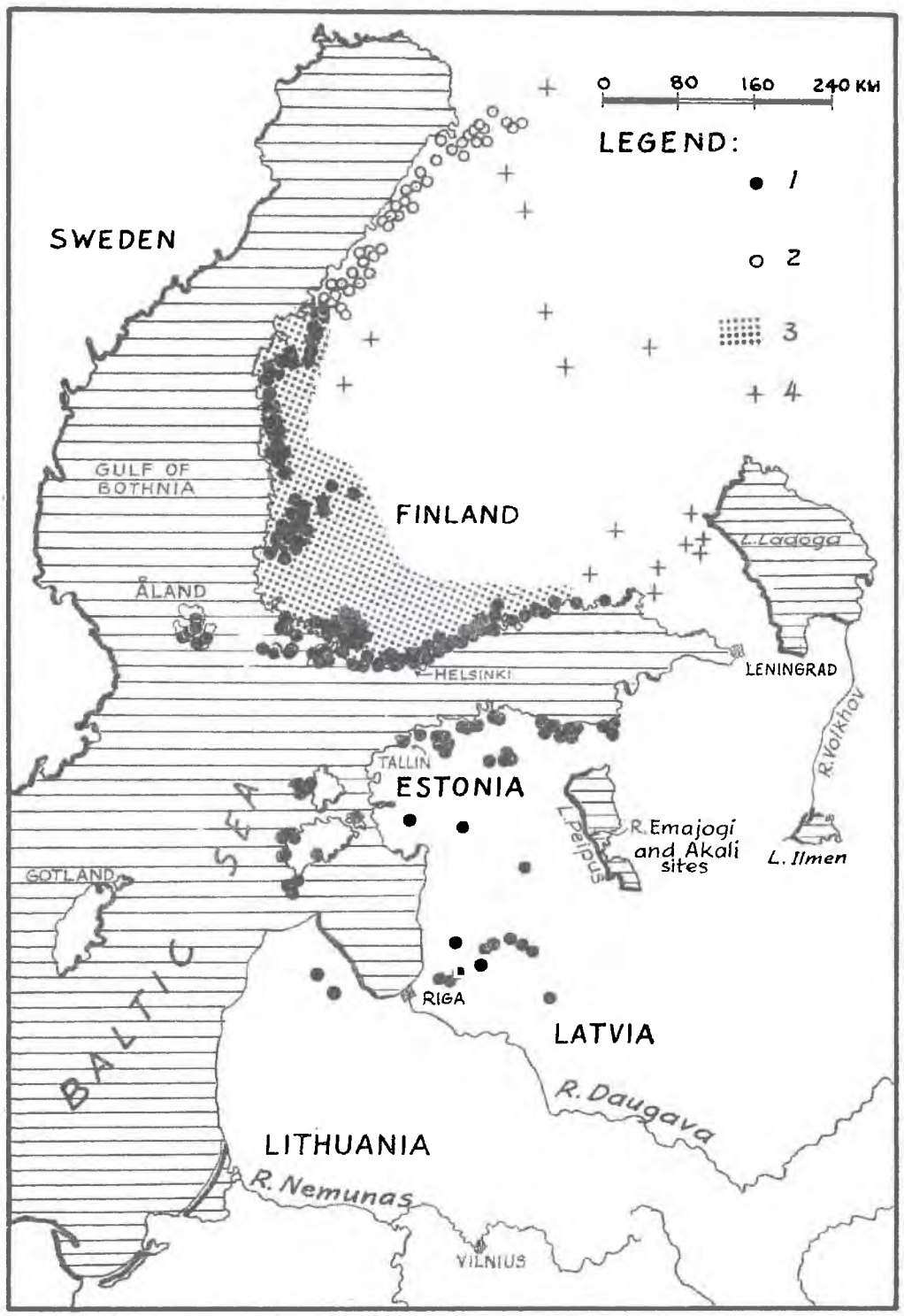


FIG. 459. Distribution of the Kiukais group and Asbestos Ware sites in western Finland, and of stone barrows in the northeastern Baltic area. **1,** excavated stone barrows; **2,** unexcavated barrows; **3,** Kiukais group; **4,** Asbestos Pottery sites. *After* Meinander, 1954a, and Moora, 1952.

and bone tools. No separation point between the late-Neolithic Kiukais complex and the Bronze Age exists. A gradual transition occurred; there are no indications of immigrations. Hence, the coastal culture of the Bronze Age in southern Finland is the cultural continuation of the Kiukais culture which around 1300 B.C. became acquainted with bronze artifacts. Pottery continued much the same as before: flat-bottomed, quite thick-walled and usually barrel-shaped or straight-walled. In later phases, profiled pots with slightly out-curving necks appeared. The pot surface was scratched and the most frequent decorative technique was pit impressions. Occasionally textile impressions were used, a trait regarded as an eastern influence. Toward the end of the Bronze Age decoration with finger-strokes was typical in the Åland sites.

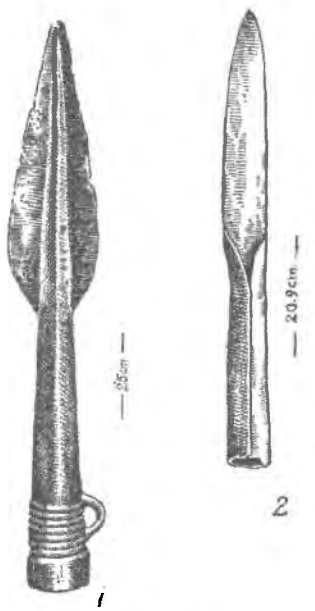


FIG. 460. Spearheads of eastern European type from **1**, Muhuu, Estonia and **2**, Perniö, Finland. *After* Moora, 1932 and Meinander 1954a.

The Bronze Age chronology in this area is based chiefly on the association of the stone barrows, stone, antler, and bone artifacts, and pottery with western bronzes. Some of the metal-free sites are approximately dated on the basis of their levels. The Kiukais settlements are located about 30 m above sea level; whereas the sites which equate with the Late Bronze Age of the south are usually found from 25 to 21 m above sea level (Meinander, 1954b, pp. 182, 183). Finds from the peat bogs were dated by pollen count. For instance, straight- and thick-walled potsherds, pit-impressed around the pot mouth, from the peat bog at Rucksmaa, district of Askola, were dated according to the history of the climate of this area to *ca.* 1200 B.C. (Meinander, 1954a, p. 171).

b. *The spread of bronze artifacts*

The earliest bronzes known so far in Finland and Estonia date from *ca.* the thirteenth century B.C. With the exception of socketed celts considered to be derivative of Sejma type (fig. 68, *2*), a spearhead with a long socket and a loop from Muuhu, Estonia (fig. 460, *1*) which shows a general similarity to spearheads of Sejma type, and a spearhead from Perniö with a folded (U-shaped) socket (fig. 460, *2*) which was doubtless from the east, the metal artifacts in southwestern Finland came from across the Baltic Sea. These were daggers, swords, spearheads, palstaves, and socketed celts of Northern Area type, and they must have come along the eastern shores of Sweden: the distribution of palstaves well illustrates the fact (fig. 461). Palstaves and daggers were richly ornamented with spirals, dots, triangles, and parallel



FIG. 461. Distribution of the Northern Area palstaves. Based on Sprockhoff, Kersten, Broholm, Forssander and Meinander. Reproduced from Meinander 1954a.

horizontal grooves (pl. 112, *1-3*, *6*, *7*). This decoration has close analogies to Jutland and southern Swedish examples. The closest analogies to the earliest known swords, daggers, and palstaves from southern Scandinavia and northwestern Germany indicate Period II (in Montelius' scheme), in most cases its later part, which coincides with the flourishing Northern Area Bronze Age. This would probably be no earlier than the thirteenth century B.C. Spearheads (pl. 112, *4*, *5*) have close parallels in Period I and in Period II, but are assigned to Period II when other imports from the west appeared. A detailed description of the bronzes in Finland is to be found in the handsome monograph on the Bronze Age of Finland by Meinander, 1954 (Meinander, 1954a).

Soon after the first metal types spread, local imitations of the imports appeared. Numerous palstaves of local origin have been found; their forms are native to southwestern Finland and Estonia, differing considerably from southern Scandinavian forms (pl. 113 *1-3*). Hence, local metallurgy seems to have started in this northern region around Northern Area Bronze Age Period III, that is, the twelfth century B.C. Clay molds using the *cire perdue* method of casting bronze are in evidence in habitation sites of the end of the Bronze Age.

From the end of the second and the first part of the first millennium B.C. great numbers of metal finds are reported. A series of swords, tweezers and razors, and ornaments such as double buttons, spiral pins with disc heads and a thorn in the middle, and spectacle disc fibulae, on the basis of comparisons with southern Scandinavian-northwestern German types can be dated from Period IV to Period VI (Meinander, 1954a, pls. 4, *d-f*; 9, 12-14, 16). Trade between Finland and Sweden continued throughout the Bronze Age. Metal objects even reached Lappland, as indicated by the hoard of Petkula, district of Sodankylä, which contained four swords of Period V (Meinander, 1954 a, pl. 16).

Another wave of influence came from the southeastern Baltic area and ultimately from the Lusatian culture. In Estonia (Rassiku, district of Harju-Jaani) a button sickle was found which is a central European, Lusatian, type (pl. 113, *4*), and has also been found in the southeastern Baltic area.

c. *Burial rites*

Throughout the Bronze Age, mounds of field stones were built above graves usually placed within large stone blocks. They appear in Finland, Estonia, and northern Latvia by the thousands. In Finland alone, about 3,000 burial mounds have been recorded, but only a small number excavated. Figure 459 shows the distribution of the stone barrows. On the south they reach the Daugava River which can be regarded as the approximate boundary between the Baltic culture and Northern Baltic Stone-Barrow culture during the Late Bronze Age. The mounds were round or, rarely, long and rectangular, encircled by one or several rings of stones. The average size was about 10 m in diameter and about 1 m high, but there were larger barrows 20 m in diameter and more than 1 m high (pl. 114). Stone mounds appear in groups. The largest group in Finland consisted of 28 barrows. The earlier cemeteries were located on elevations or rocky mountains, while Late Bronze Age cemeteries were to be found on low elevations. In 18 barrows of Finland, bronze artifacts appeared which date them in Periods II-V and later (Period VI and early Iron Age) in Montelius' scheme. Some of the barrows lacking metal artifacts may precede the metal age (Meinander, 1954a, pp. 111 ff.)

Inhumation was the only burial rite in the earlier barrows. Cremation was used during Period III, the twelfth century B.C. and continued throughout the Late Bronze Age and Early Iron Age. The appearance of cremation rites can be considered a western influence, as there was no cremation east of western Finland. Inhumation, however, persisted along with cremation. Urns were not used. In general, in the graves in stone barrows, pots almost never appear. Among the grave goods were perforated stone axes, flint or bronze daggers, swords, spearheads, etc. The majority of the burial mounds excavated in Estonia, mostly on islands and on the northern Estonian coast, and in northern Latvia belong to the end of the Bronze Age and Early Iron Age (Moora, 1932, 1952; Vassar, 1937; Šturms, 1950).

The burial mound constructed of stones is a type related to barrows in Sweden where they occur n Period I and at the end of the Neolithic.

id. *Settlement pattern and economy*

At Åland, in the southeastern group of islands, a habitation site at Ötterböte, district of Kökar, situated on a rocky plateau close to the sea preserved the remains of nine house foundations built of field stones. The houses were round, about 5-6 m in diameter and were very close to one another (fig. 462; pl. 115). Within each was a hearth encircled by postholes for wooden posts. The roof was propably conical and supported by posts erected in the central part of the hut. Pots found in the site were barrel-shaped and decorated with finger strokes, wavy, horizontal, vertical; some had pit impressions around the upper part of the pot and were textile impressed. The stone tools were crude forms made of hard stone. Some were probably scrapers and burins. The flints found were also crude in form, and evidently were used for lighting fire. Fragments of polished chisels made of diabase were found (Meinander, 1954a, 136, fig. 85, *e*).

A site similar in nature was excavated in 1951 in Tjärnan, district of Saltvik, Åland (Meinander, 1954a, pp. 137-40). Along with the house remains, evidence for fishing and seal hunting, a large saddle-quern, pots similar to those at Otterbötte, and remains of bark vessels (probably linden tree bark), there were found a bronze pin with a head decorated with four narrow ribs, fragments of an armband and ring, and

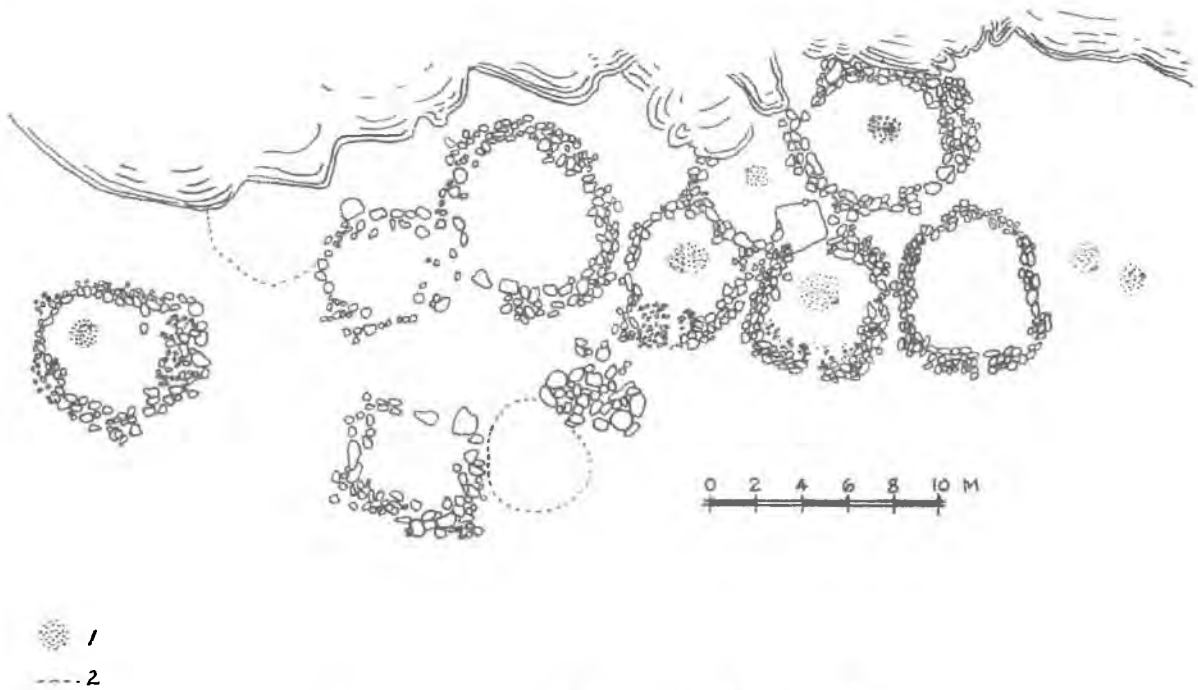


FIG. 462. Plan of excavated village in Otterböte, Åland Island,
1, hearth; **2**, refuse piles. *After* Meinander, 1954a.

a fragment of a clay mold. The bronzes date the whole complex to Period V. A series of sites with related material were uncovered in the coastal zone of southwestern Finland (Meinander, 1954a, pp. 152-73).

Evidence on the economy comes chiefly from the late phases of the Bronze Age. By at least the eighth or seventh centuries B.C. food-producing was known. Quern stones appeared even in fishing villages like Útterbötte and Tjärnan on Åland, where cultivation of crops was impossible due to rocky soil. This suggests that they obtained grain from other villages nearby. In the northern Estonian sites plenty of antler hoes and sickles, as well as wheat and barley impressions in clay, appeared. The main subsistence techniques were stockbreeding and fishing, as we can see from long-inhabited sites (viz. Asva and Iru: Moora, 1954; Vassar, 1955).

This economy and settlement pattern continued throughout the early Iron Age in this area.

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PLATES

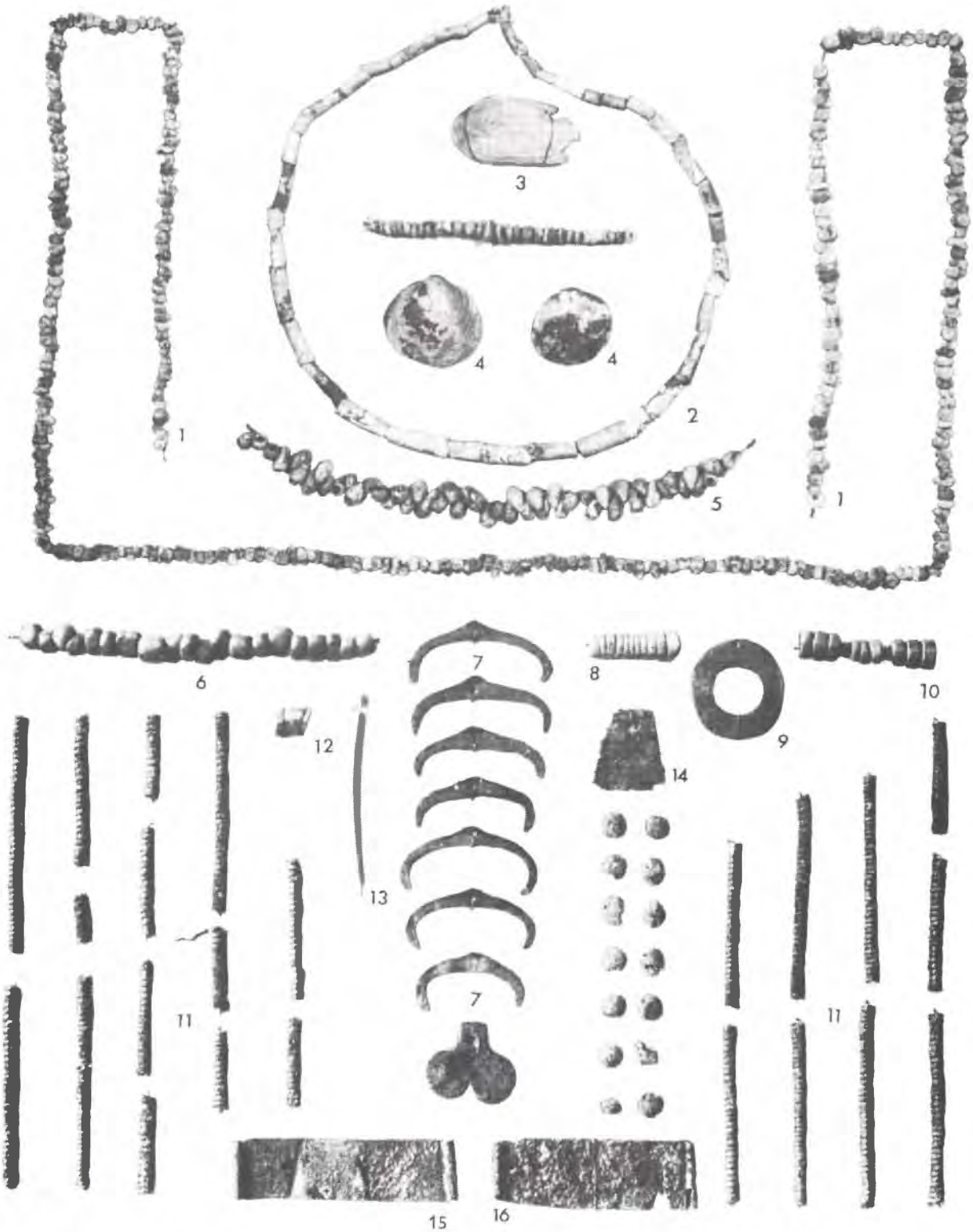


PLATE 1. Inventory of grave No. 162 of the cemetery of Szöreg near Szeged, eastern Hungary. **1**, faïence beads of angular shape; **2**, *Dentalium* (salt water shell) beads interspersed with bone beads; **3**, *Unio* (?) shell; **4**, *Cardium* (salt water) shells; **5**, unidentified salt water shells; **6**, clay beads; **7**, sacred ivy-leaf pendants of copper; **8**, **10**, bone beads; **9**, bone ring pendant with a small perforation for suspension; **11**, cylinders of copper wire; **12**, object of unknown use; **13**, awl; **14–16**, copper plates with rolled ends (diadems?). Scale approx. $^1/_2$. *By courtesy* of Mora Ferenc Múzeum in Szeged and I.Bóna, 1960.

PLATE 2. **1**, bone pendant; **3**, a bowl and **2**, a jug (three views) from early Únetice cemetery of Brandýsek, district of Slaný, Bohemia. Scale: pots approx. $^1/_6$, pendant approx. $^1/_2$. *After* Hájek, 1942.



PLATE 3. Finds from the early Unetice cemetery of Abraham, western Slovakia. **1**, copper pin with a disc head; **2**, knot-headed pin; **3, 4**, copper daggers or knives; 5, faïence beads; **6**, white stone bead; **7**, hair-ring; **8, 9**, plates made of boar's tusks belonging to a necklace; **10**, copper dagger blade; **11**, earring; **12**, spiral finger-ring; **13, 14**, Únetician jugs; and **15**, **16**, mugs. Scale approx. $^2/_3$. *By courtesy of the Archaeological Institute of the Slovak Academy of Sciences in Nitra, Slovakia.*



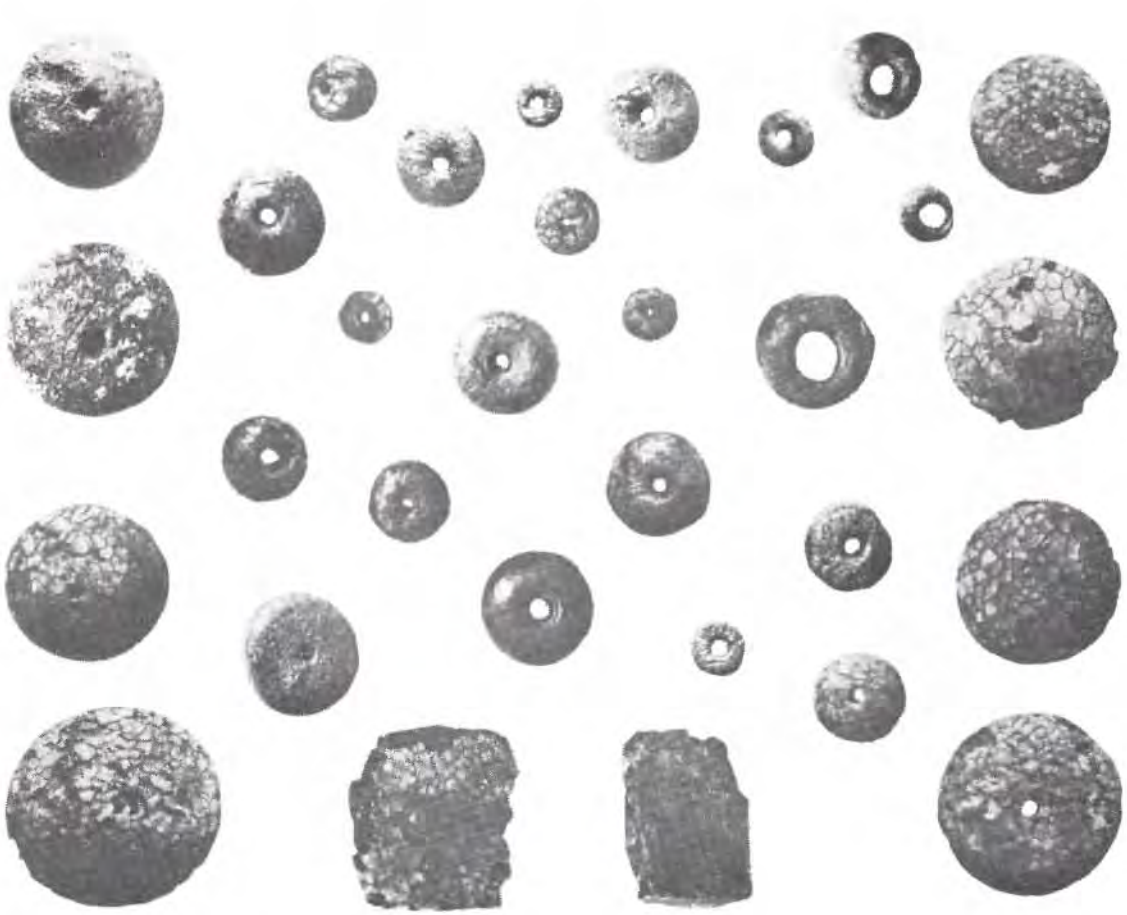


PLATE 4. Flattened spherical and spacer (*lower row, center*) amber beads from Shaft-grave IV of Mycenae. Scale $^1/_1$. *After* Schliemann, 1878.

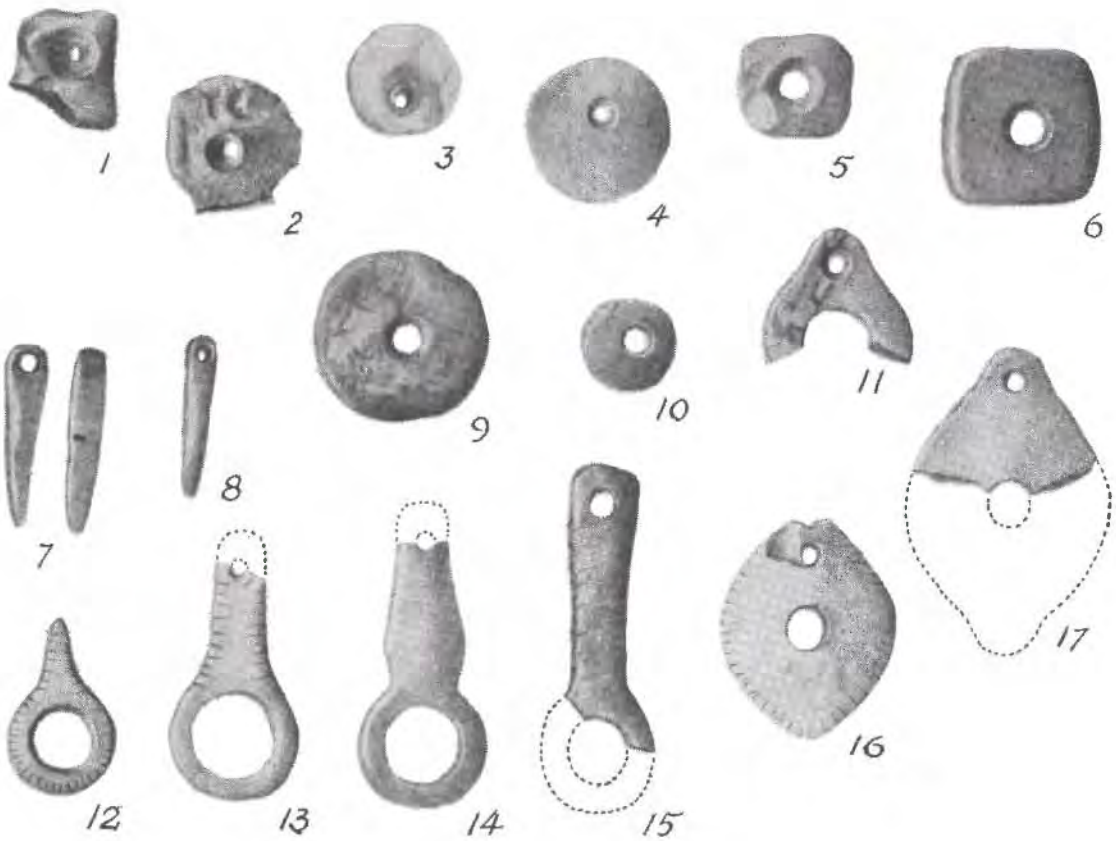


PLATE 5. **3, 4, 9, 10,** spherical, **7, 8,** elongated (axe-shaped ?), and **1, 2, 5, 6,** unfinished amber beads; **11–17,** amber pendants from Juodkrante, western Lithuania. Scale approx. $^4/_5$. *After* Klebs, 1882.



PLATE 6. **1–5**, amber pendants from Denmark and Sweden; **5–15**, finds from a stone cist at Skogsbo, district of N. Säm, Västergötland. **1**, probably from the period equivalent to the Bell Beakers in central Europe; **2–15**, from the successive period, equivalent to classical Únetice. **6**, copper spiral ring; **7**, fragment of a copper bracelet; **8**, **9**, stone buttons with a letter V perforation; **10–14**, flint arrowheads; **15**, beaker. Scale approx. $^{4}/_{5}$. After Glob, 1952 (**1–4**) and Forssander, 1936 (**5–15**).

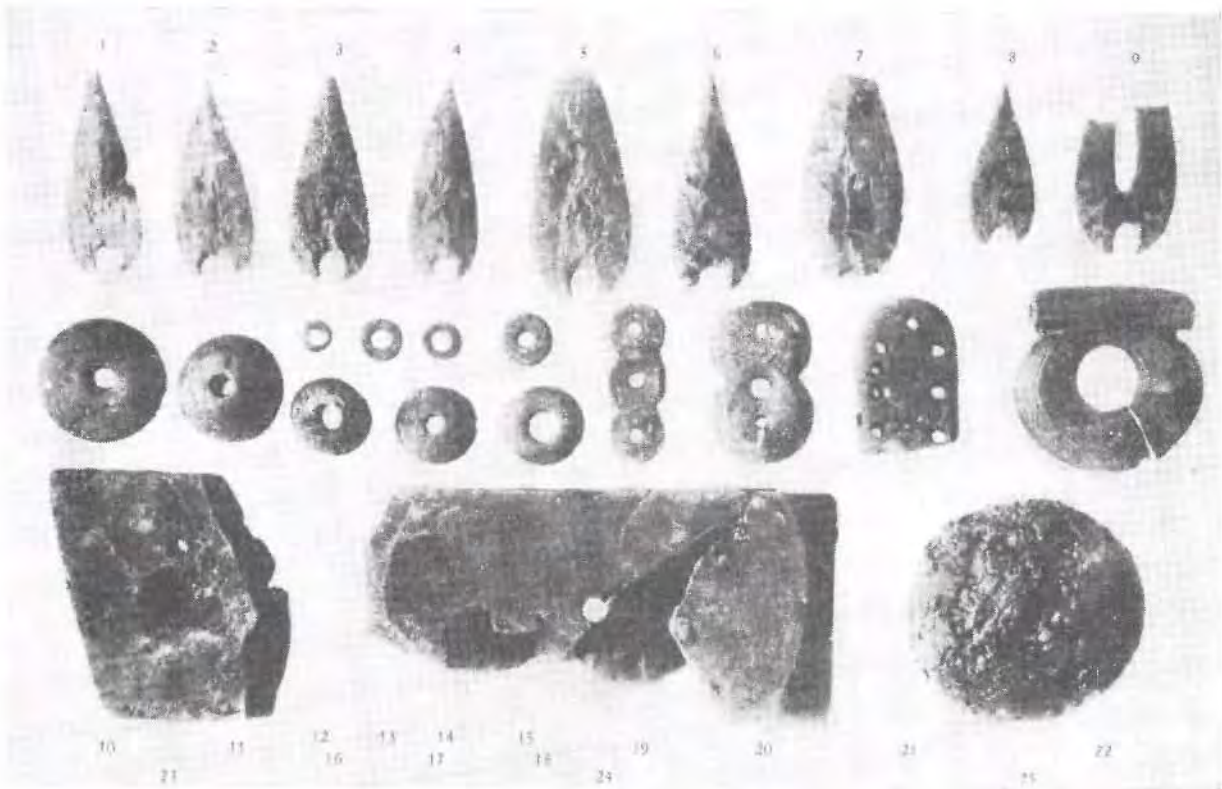


PLATE 7. **1–9**, flint arrowheads; **10, 11, 16, 17, 25**, spherical amber beads; **12–15, 18**, annular amber beads; **19**, triple bead; **20**, double bead; **21**, perforated amber plate; **22**, ring pendant with a projection for suspension and **23, 24**, amber spacer beads from the tholos tomb of Kakovatos in Elis, western Peloponnese, Greece. *After* Müller, 1909.



PLATE 8a. **1**, gold halberd blade (22.2 cm. long) and **2**, gold arm-ring (*ca.* $^1/_1$) from the hoard of Măcin, Dobruja, eastern Rumania. *Courtesy of the Municipal Museum of Bucharest.*



1



2

PLATE 8b. **1**, gold dagger from the treasure of Perşinari, near Târgoviste, northwest of Bucharest, scale $^1/_2$; **2**, golden hilt of a sword decorated with spirals and lion heads from Grave Delta of the grave circle B of Mycenae. The hilt is 14 cm. long, the blade of the sword is 94.5 cm. long. **1**, Reproduced from the album of prehistoric art monuments in Rumania, ed. by Condurachi, 1960; **2**, *after* Marinatos, 1959.



PLATE 8c. The hoard of Tufa, district of Domnești, southwest of Bucharest. **1**, **2**, copper axes; **3**, **4**, gold earrings (?). Scale: **1**, 11.3 cm. long; **2**, 15.6 cm. long; **3**, 2.5 cm. in diameter; **4**, 3.2 cm. in diameter. *After* Vulpe, 1959.



PLATE 9. Hoard from the Museum of Nikopol', found on the Southern Bug River, near the Black Sea, western Ukraine. **1**, copper axe; **2**, copper awl; **3**, 4, basket-shaped ornaments; **5**, gold hair-rings. Scale approx. $^3/_4$. *After* Tallgren, 1931a.



PLATE 10. Bridle parts and an ornamental plate of antler with Mycenaean spiral-and-pulley decoration from the habitation site of Nitrianski Hrádok, western Slovakia. *By courtesy of the Archaeological Institute of the Slovak Academy of Sciences in Nitra, Slovakia.*

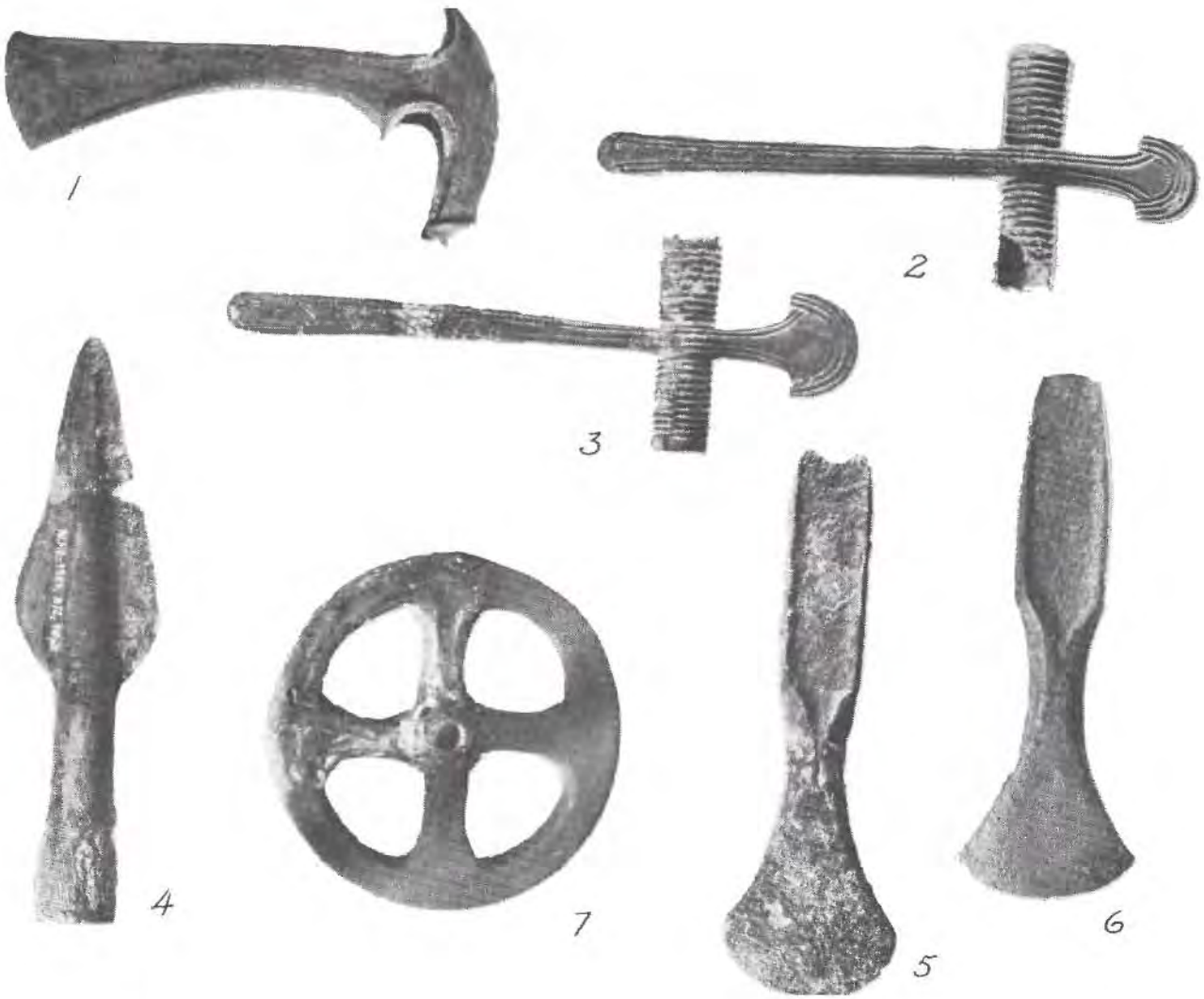


PLATE 11. The hoard from the habitation site of Nitrianski Hradok, western Slovakia. **1**, shaft-hole axe; **2, 3**, axes with a vertical and ribbed shaft-tube; **4**, spearhead; **5, 6**, axes with a V-shaped flange; **7**, clay model of a wheel. Scale approx. $^1/_2$. *By courtesy of the Archaeological Institute of the Slovak Academy of Sciences, Nitra.*



PLATE 12. The Borodino hoard, Bessarabia, northwest of the Black Sea. **1–3**, maceheads of alabaster; **4–8**, stone axes of semi-precious stone; **9**, copper plate; **10**, silver dagger; **11**, silver pin; **12, 13**, silver spearheads. *After* Krivtsova-Grakova, 1949.



PLATE 13. Ornaments (details) on **1**, Borodino dagger, **2**, pin, **3**, **4**, spearhead sockets, and **5**, **6**, golden buttons from shaft-grave I at Mycenae. Scale approx. $^{1}/_{1}$. *After* Krivtsova-Grakova, 1949 (**1**–**4**) and Schliemann, 1878 (**5**, **6**).



PLATE 14. Finds of "Koszider" or B_1 type from the hoards of Dunapentele-Kosziderpadlás I (**1, 2, 4, 14–16**) and II (**5, 7–10, 17–19**), Alsónemedí (**3, 18**), and Pusztaszentkirály (**6, 11–13**) on the middle Danube, south of Budapest. **1, 2,** sacred ivy-leaf pendants; **3, 4,** circular pendants; 5, pin with a disc head and bent stem; **6,** "Hungarian" battle-axe; **7, 8, 10,** button sickles; **9,** tanged sickle; **11,** spiral arm-ring; **12, 13,** massive bracelets with tapered ends; **14–16,** amber beads; **17,** low-flanged axe with parallel sides; **18,** axe with V-shaped flanges; **19,** dagger blade. Scale approx. $^1/_2$. *After* Mozsolics, 1957.



PLATE 15. Finds of Phase B_2 from tumulus I of the cemetery at Malnice, district of Louny, Bohemia. **1**, rapier; **2**, bracelet; **3, 4, 9**, finger-rings; **5**, flanged axe with a bronze spiral for attachments to the wooden haft; **6**, pin with a flat disc head; **7, 8**, cups; **10**, amphora decorated with small bosses. Scale: **1b, 2–6**, $^1/_1$; **1a, 7, 8, 10**, approx. $^1/_3$. *After* Plesl, 1954.



PLATE 16. The Hittite thunder or lightning god found in Šernai near Klaipėda (Memel), Lithuania. Three views. Approx. 15 cm. high. *After* Wiesner, 1941.



PLATE 17a. Handles of bronze inward-curving knives with animal terminals. **1**, the cemetery of Sejma, central Russia, and **2**, the cemetery of Turbino on the upper Kama River, west of the middle Urals. Scale approx. $^2/_3$. *After* Eding, 1940.



PLATE 17b. Curved knives of bronze from northern China. Isolated finds. *From the Sackler Collections, New York.*

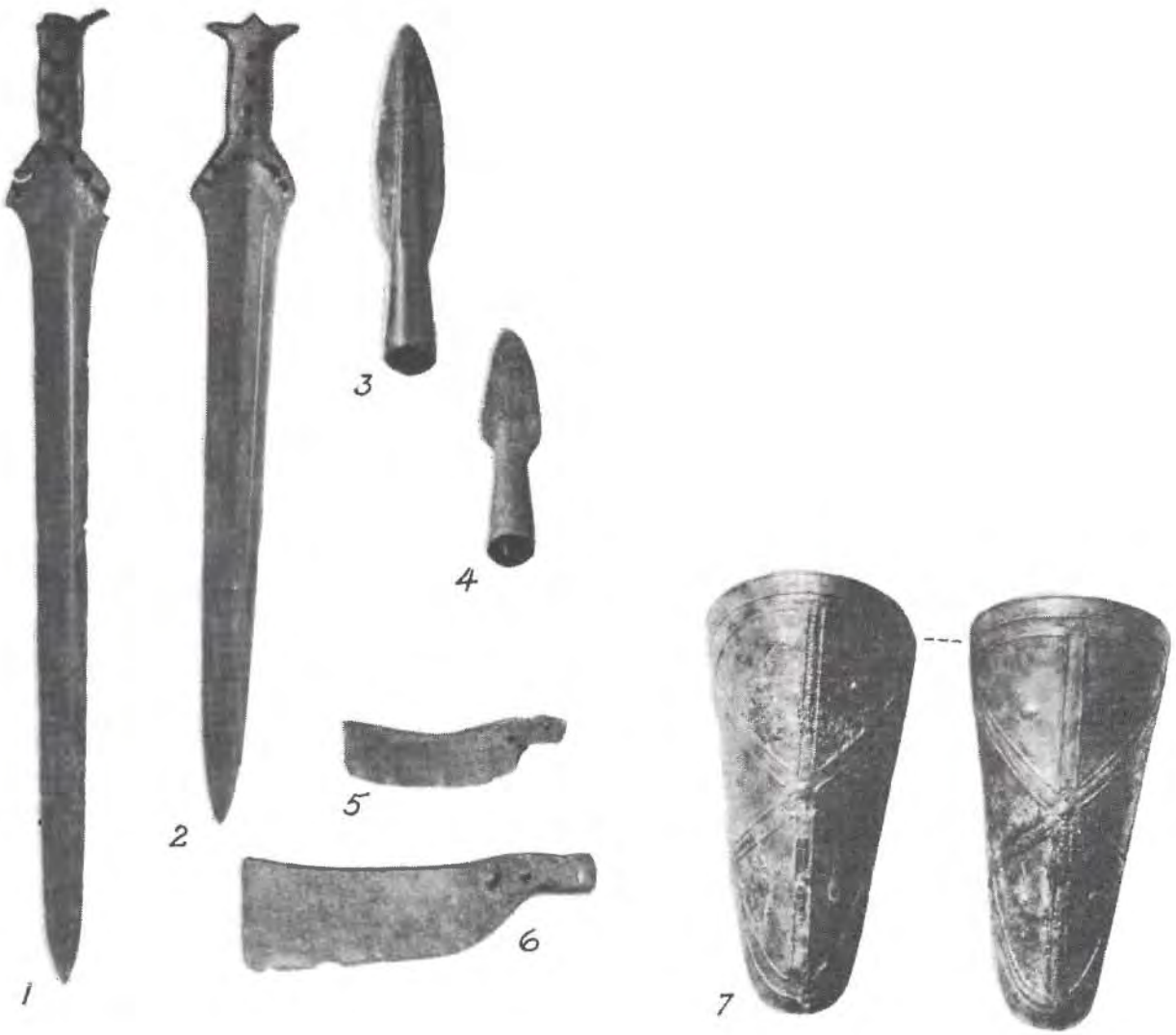


PLATE 18. **1**, **2**, swords; **3**, **4**, spearheads; **5**, **6**, knives; and **7**, greaves from the cemetery of Kallithea near Patras, Greece. *After* E. Vermeule. 1959.

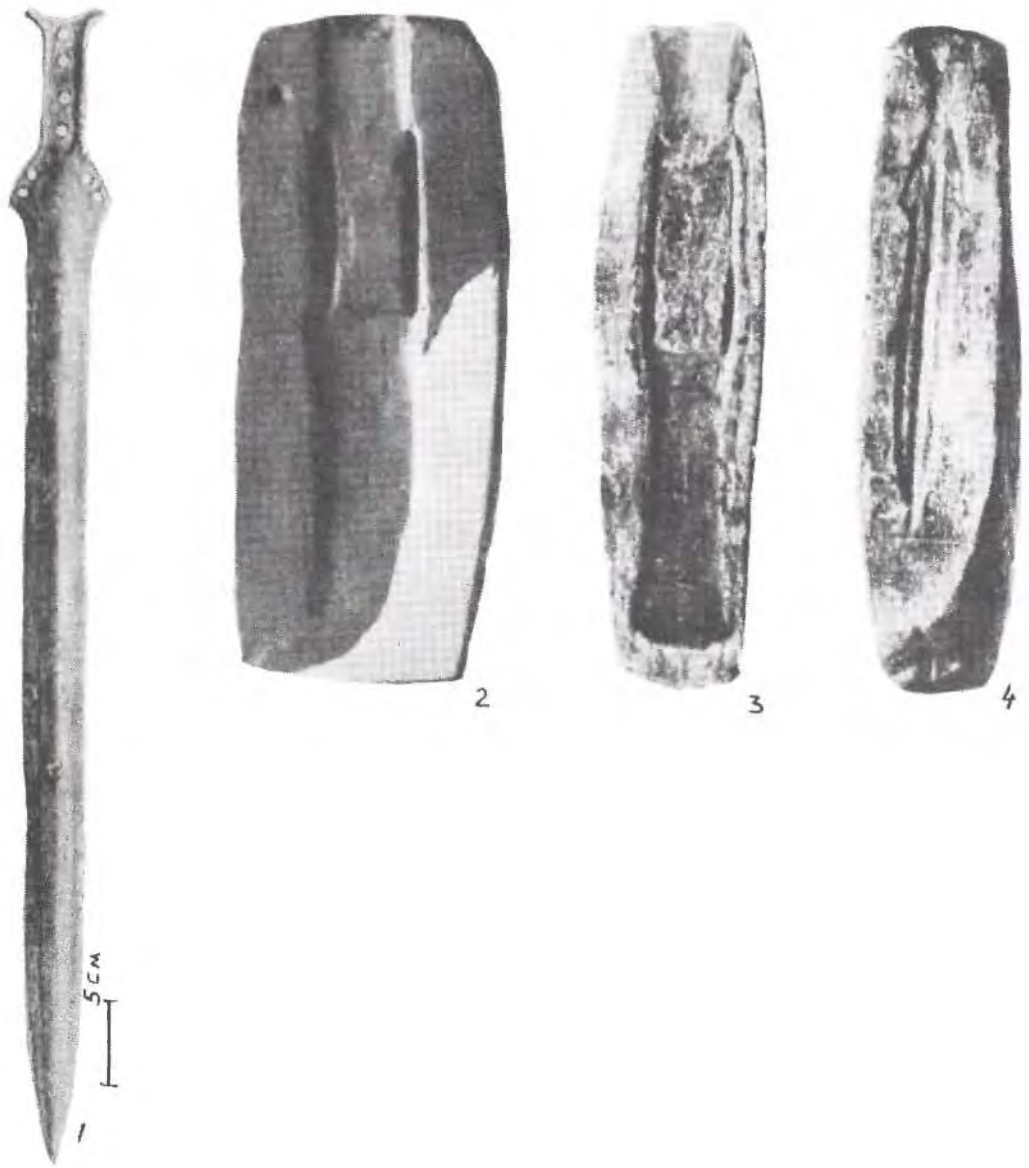


PLATE 19. **1**, sword from Mycenae, found in the Late Helladic III B house; **2**; stone mold for a central European type of median-wing axe found in the Late Helladic III B tomb at Mycenae, Greece; **3**, mold for a median-wing axe; 4, mold for a dagger from the hoard of Zeliezovce, Slovakia. *After* Benton, 1931 (**1**), Childe, 1956 (**2**) and Novotná, 1957a (**3**, **4**).



PLATE 20. Objects from the treasure of Tiryns, Greece. **1**, amber beads within plaited gold wire "basket" 10.0 to 10.7 cm. in diameter; **2**, tripod, 34 cm. high, holding a cauldron; **3**, **4**, flange-hilted swords of central European type, 55 cm. and 81.3 cm. long. *After* Karo 1930.

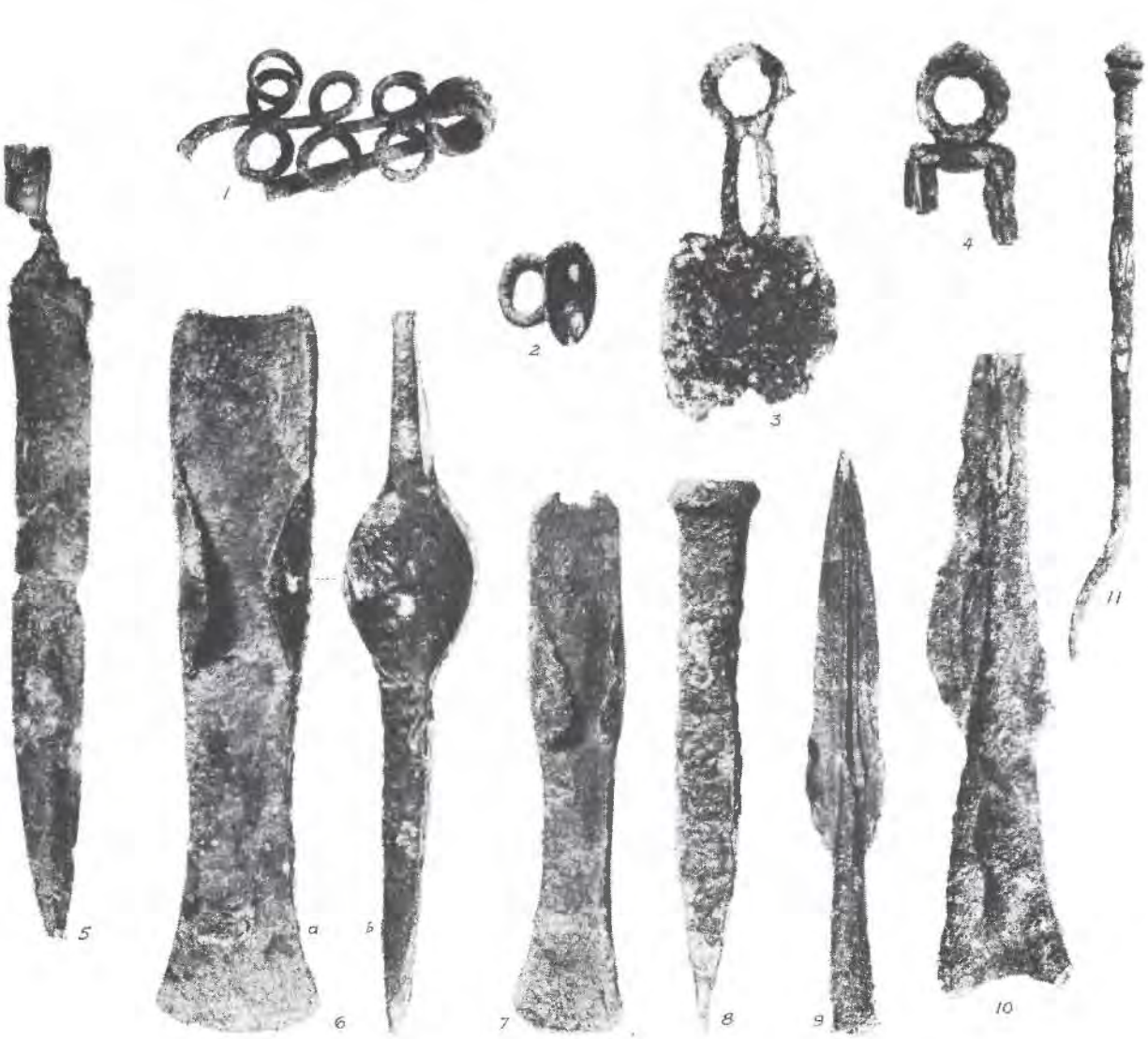
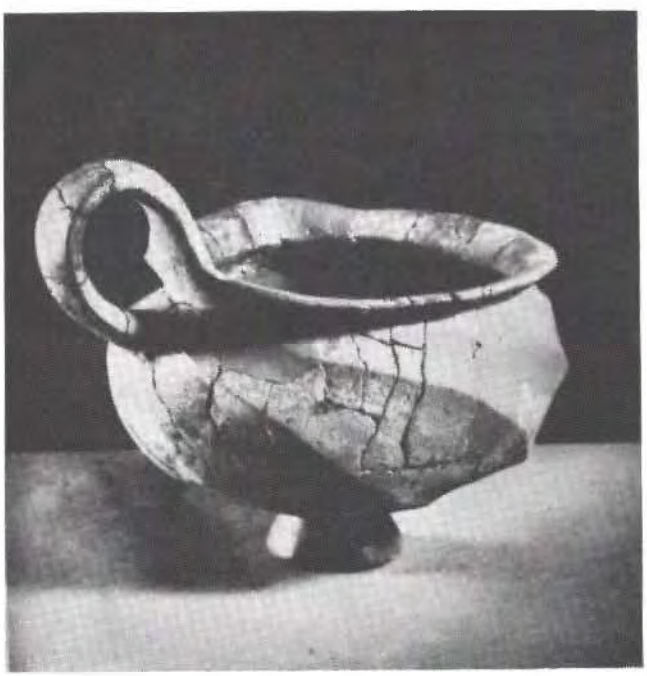


PLATE 21. Inventory from a royal cremation grave in the barrow at Čaka near Želiezovce, Slovakia. **1**, fibula with a figure-eight bow; **2**, button; **3**, **4**, fragments of razors with a ring handle; **5**, flange-hilted sword; **6**, **7**, median-wing axes; **8**, chisel; **9**, **10**, flame-shaped spearheads: **11**, pin. (Armor from the same grave not illustrated.) Scale *ca.* $^1/_2$. *Courtesy of the Archaeological Museum of the Slovak Academy of Sciences in Nitra, Slovakia.*



1



2

PLATE 22. Pots from the royal grave at Čaka near Želiezovce, Slovakia. Scale **1** $^{1}/_{7}$; **2** $^{1}/_{4}$. *After* Knor, 1952.



PLATE 23. **1**, rings; **2**, buttons; **3**, spectacle brooch; **4**, bracelet with spiral ends; and **5**, **6**, bronze vessels from the hoard of Jenisovice, Bohemia. Scale approx. $^1/_2$. *After* Kytlicová, 1959.



PLATE 24. Villanovan helmet from Zavadintsy (Krzemier na), western Ukraine. Isolated find. Musee Massena, Nice.



PLATE 25. Nagyrév pots from cremation graves of the cemetery at Szoreg, district of Szeged, Hungary. *After* Foltiny, 1941.



PLATE 26. Early Hatvan pottery types. Habitation site of Tiszafüred, eastern Hungary. Scale approx. $^1/_4$. *By courtesy of Dr. Bóna, Budapest.*



PLATE 27. Late Hatvan pottery from the cemetery of Hatvan, eastern Hungary. Scale approx. $^1/_6$. *By courtesy of Dr. Bóna, Budapest.*



a



b

PLATE 28. House remains from Barca, eastern Slovakia. Otomani culture. **a**, plan of one house with two compartments showing the postholes and the hearth in the larger room. **b**, a row of houses. *By courtesy of the Archaeological Institute in Prague of the Czechoslovak Academy of Sciences.*



PLATE 29. **1**, a clay oven with a pot inside, and **2**, a vase from the classical Otomani village at Barca, eastern Slovakia. Scale: **1**, approx. $^1/_6$; **2**, approx. $^1/_3$. *After* the National Museum in Prague, exhibition 1958.



PLATE 30. Pottery from the cemetery of Megyaszo near Zemplen, northern Hungary. Scale $^1/_6$. *After* Tompa, 1937.

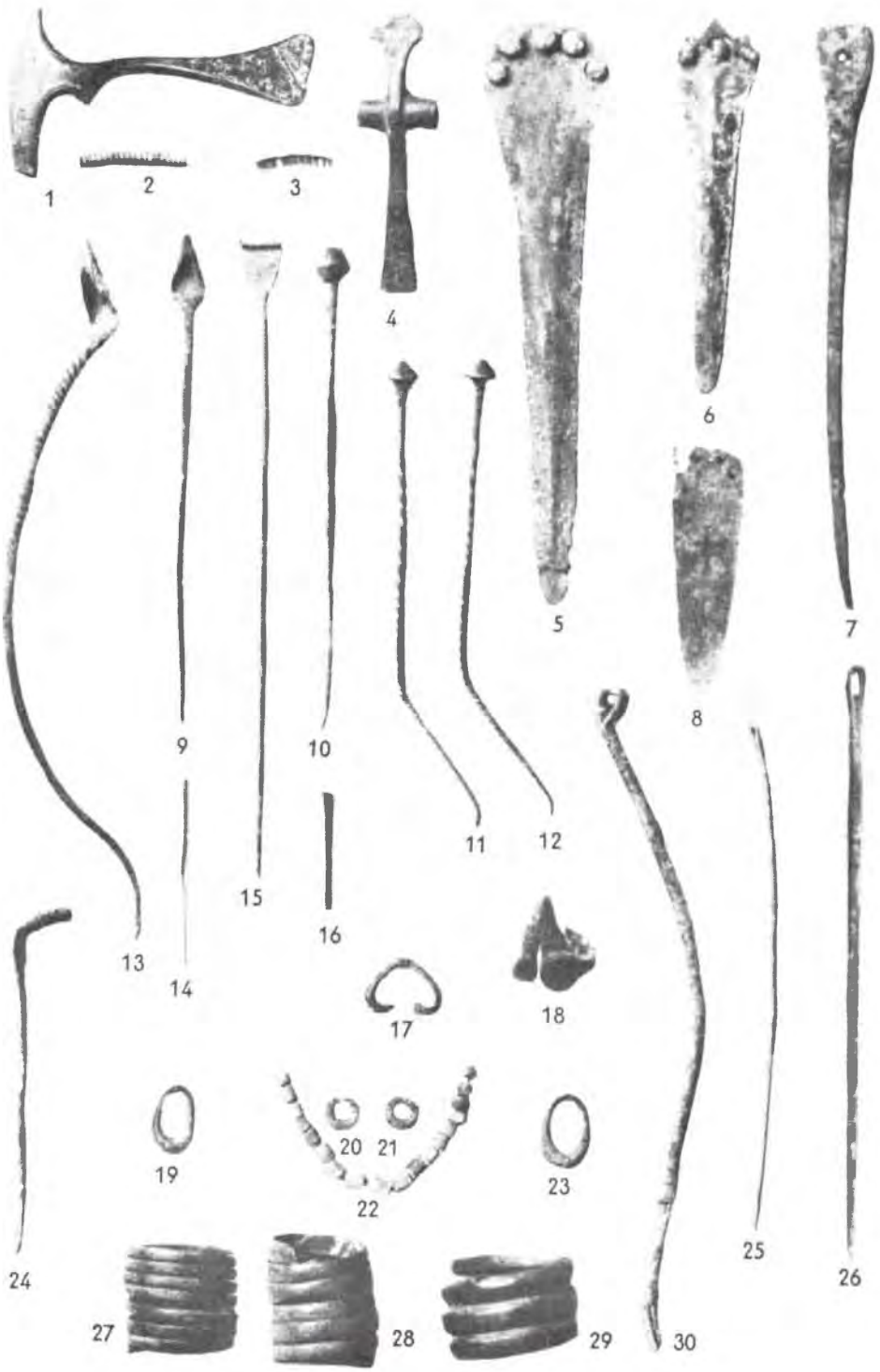


PLATE 31. Finds from the cemetery of Megyaszó near Zemplen, northern Hungary. **1**, shaft-hole axe with a long butt; **2, 3**, bronze spirals; **4**, "Bohemian" axe; **5, 6, 8**, dagger blades; **7**, bone pin; **9, 13**, pins with rhomboid plate heads and folded corners; **15**, pin with a racquet-head; **10–12**, pins with biconical heads; **14, 16, 25, 26**, needles; **24**, late "Cypriote" pin; **17–21, 23**, bronze hair-rings; **22**, faience beads; **27–29**, bronze arm-rings; **30**. pin. Scale: **1, 8**, $^{1}/_{3}$; **4**, $^{1}/_{4}$; 2, **3, 5, 6, 9-12, 5, 24–26**, $^{1}/_{2}$; **13, 14, 16, 17, 19–23**, $^{2}/_{3}$; **7**, $^{4}/_{5}$; **18, 27–30**, $^{3}/_{4}$. *After* Tompa, 1937.



PLATE 32. Forms from the gold treasure of Ostrovul Mare, southern Rumania. **1–4**, ornamental plates; **5, 6**, bracelets; **7–15,** hair-rings. Scale approx. $^{2}/_{3}$. *After* Popescu, 1955.



PLATE 33. Late Otomani sherds (**1–8**) and pots (**9**, **10**) from the site Nyíregyháza-Morgó, northeastern Hungary. Scale approx. $^1/_2$. *After* Kalicz, 1957.



PLATE 34. Finds from the cemetery Igrici-Matata, grave No. 3, northeastern Hungary. **1**, fragments of bronze rings; **2**, pot of Late Otomani type; **3, 6–9**, pots of Tumulus type; **4**, bead; **5**, unidentified object. Scale: **1, 4, 5** *ca.* $^1/_1$; **2, 3, 6, 8** ca. $^1/_2$; **7, 9** ca. $^1/_3$. *After* Kalicz, 1957.

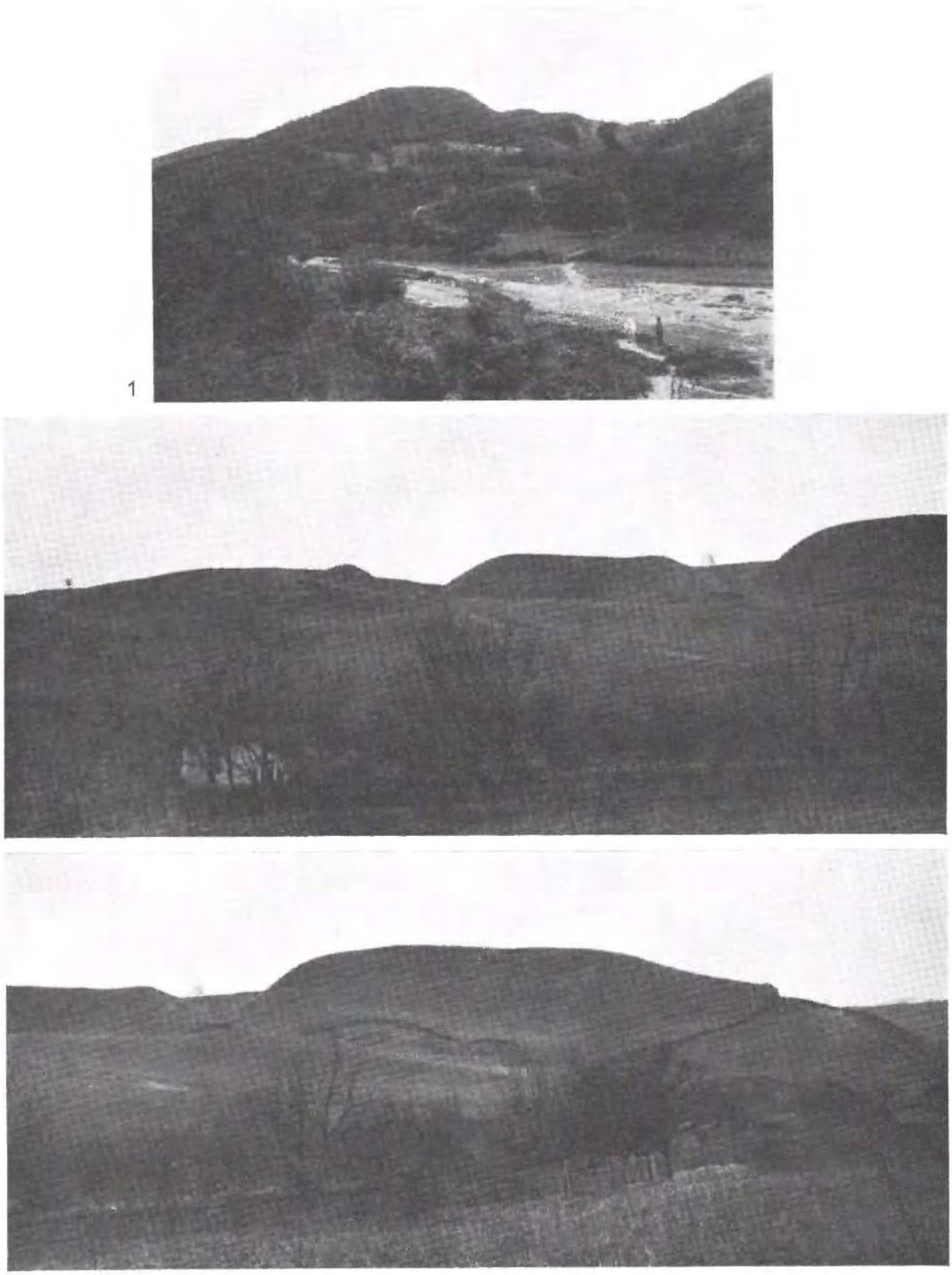


PLATE 35. **1**, the Cetaţuia (fortress) of Monteoru. A view from the side of R. Sărata. In front, on the terrace, Monteoru Cemetery No. 1; **2**, the Cetăţuia of Răcăciuni on the promontory of the Siret River. *By courtesy of Institutul Arheologie, Bucharest.*

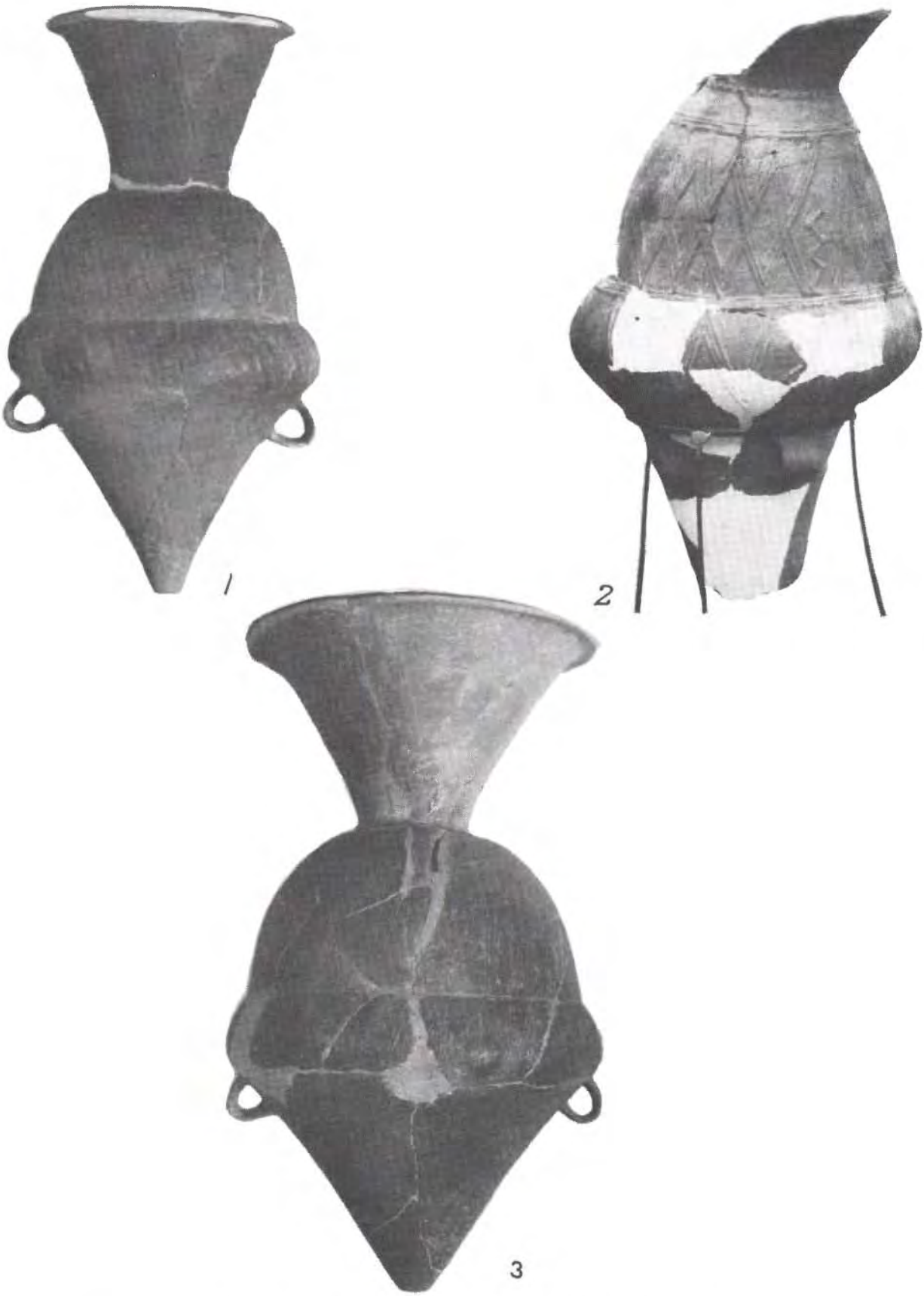


PLATE 36. Sacrificial vases from **1**, Sărata-Monteoru layer 1a and Cemetery No. 2; **2**, the upper stratum of the Costisa site, Moldavia. Scale approx. $^1/_8$. *By courtesy of Prof. I. Nestor, Dr. E. Zaharia* (**1** *and* **3**) *and Dr. A. Vulpe* (2), *Institutul Arheologie, Bucharest*, 1960.



PLATE 37. **1**, stone sickle from Sărata-Monteoru layer Ic_3 and **2**, mold for an axe found in Sărata-Monteoru layer IIb. Scale approx. $^1/_2$. *By courtesy of Prof. I. Nestor, Bucharest*, 1960.

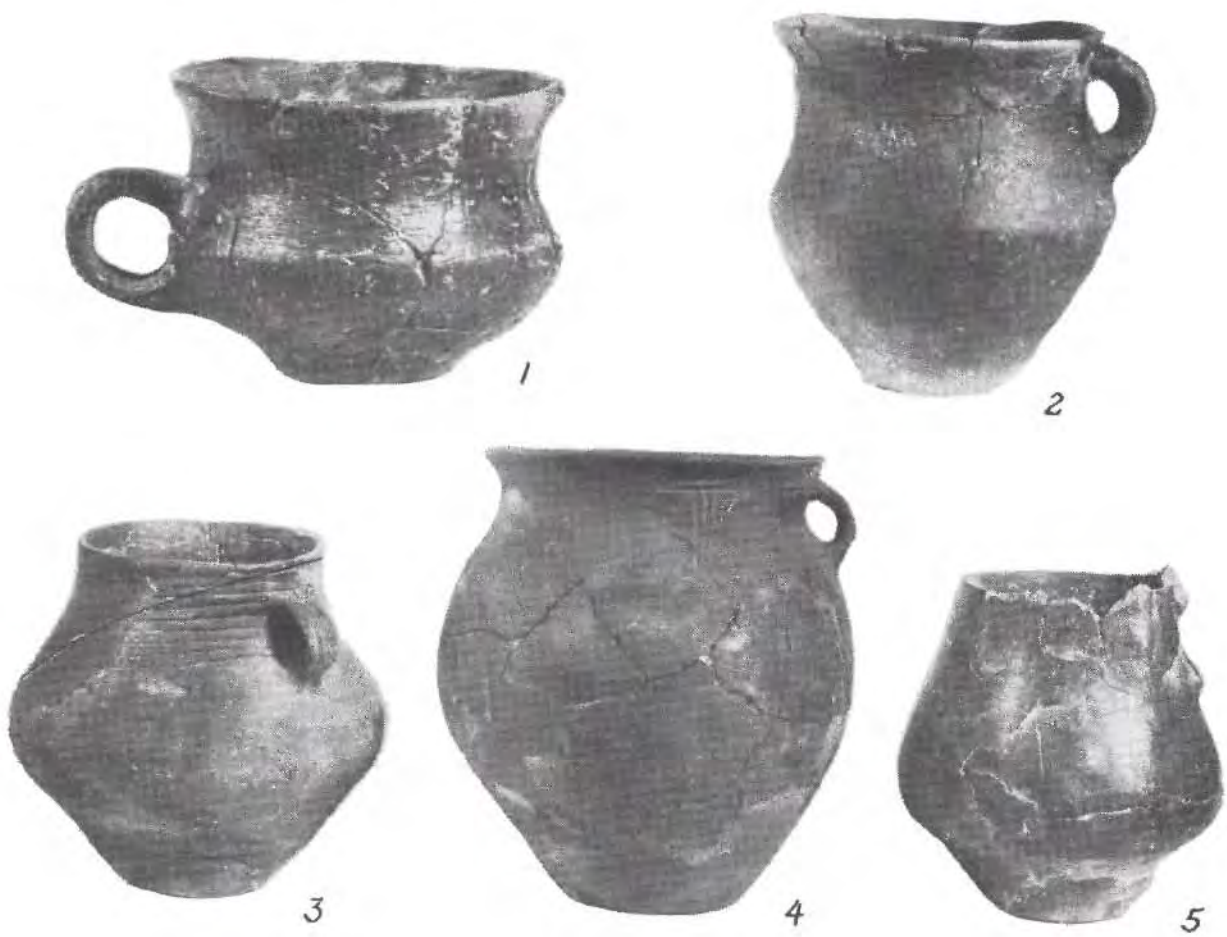


PLATE 38. Early Unetice pottery from the cemetery of Vycapy-Opatovce near Nitra, western Slovakia. **1. 2**, mugs; **3–5**, pots with small handles. Scale approc. $^1/_4$–$^1/_5$. *Courtesy of the Archaeological Museum in Nitra.*



PLATE 39. Early Únětice copper artifacts from the hoard of Neudorf at Staatz, north of Vienna. **1**, **2**, pins with disc-heads; **3**, **4**, ornamental plates; **5**, spiral bracelet; **6**, hair-ring; **7–10**, necklets; **11–13**, arm-bands. Scale less than $^1/_3$. *By courtesy* of the Eggenburg museum and the Bundesdenkmalamt in Vienna.





PLATE 40. Classical Unetician graves of bathtub-shape. *Upper*: Brodce cemetery, Bohemia. *After* Rataj, 1954. *Lower*: Rebesovice, Moravia. *After* Tihelka, 1953a.

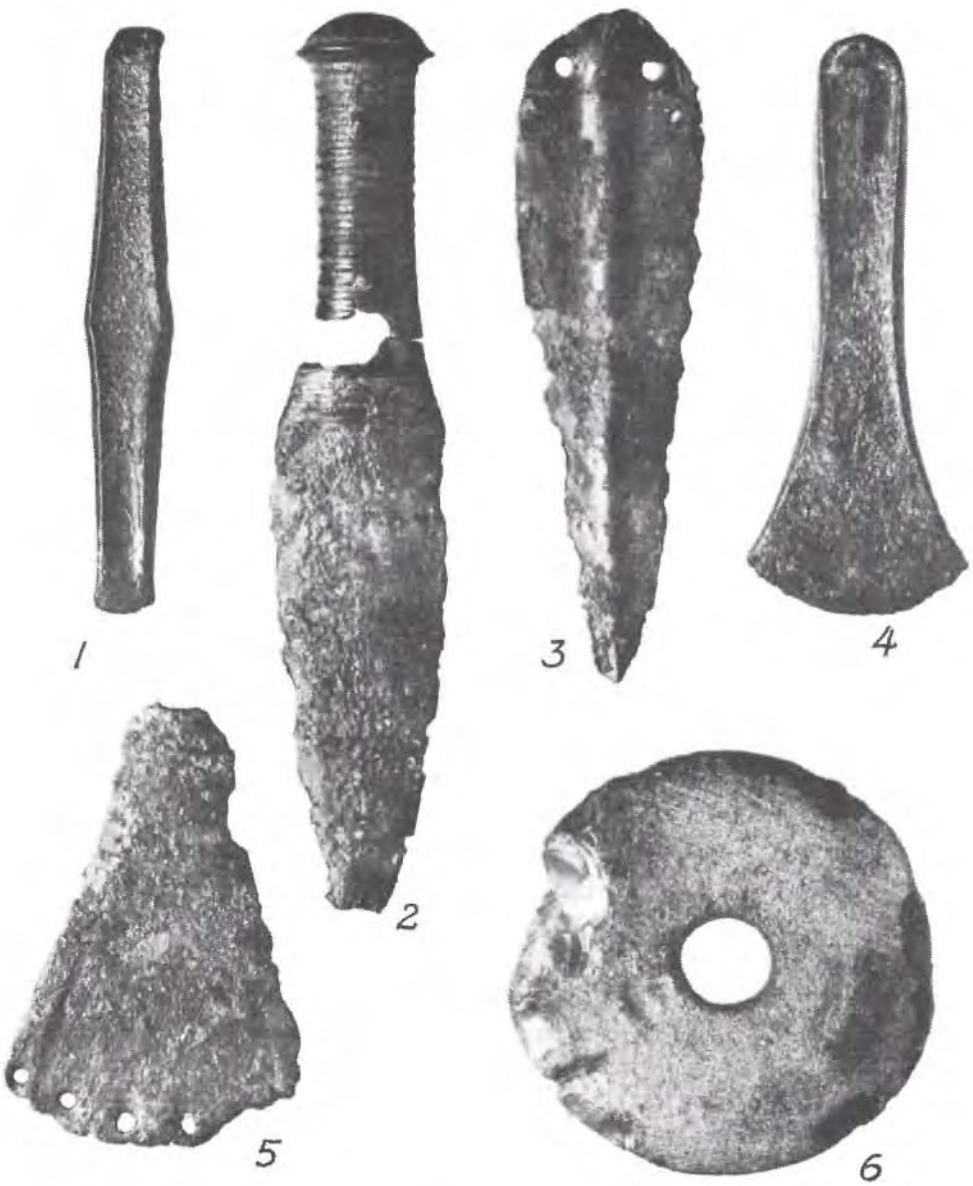


PLATE 41. Classical Únetice hoard: **1**, chisel; **2**, bronze-hilted sword; **3**, **5**, dagger blades; **4**, flanged axe; and **6**, amber bead. Przysieka Polska near Koscian, western Poland. Scale: bronzes approx. $^1/_2$; amber bead $^1/_1$. *By courtesy of the Archaeological Museum in Poznan.*



PLATE 42. Classical Unetice hoard of Granowo, western Poland. Halberd heads, bronze-hilted daggers, flanged axes, bracelets, and necklets. *By courtesy of the Archaeological Museum in Poznan.*

1



2



PLATE 43. **1**, late Únětice (Veterov) hill-fort of Cezavy near Blucina, Moravia; **2**, general view of the present surroundings. Hill-fort on the left side. *After* Tihelka, 1960.



1



2

PLATE 44. Fortifications of the hill-fort at Cezavy near Blucina, Moravia. **1**, stone wall fallen into the ditch; **2**, ditch and stone wall reconstructed. *By courtesy of K. Tihelka, Excavator, Archaeological Institute of the Czechoslovak Academy of Sciences at Brno*, 1961.

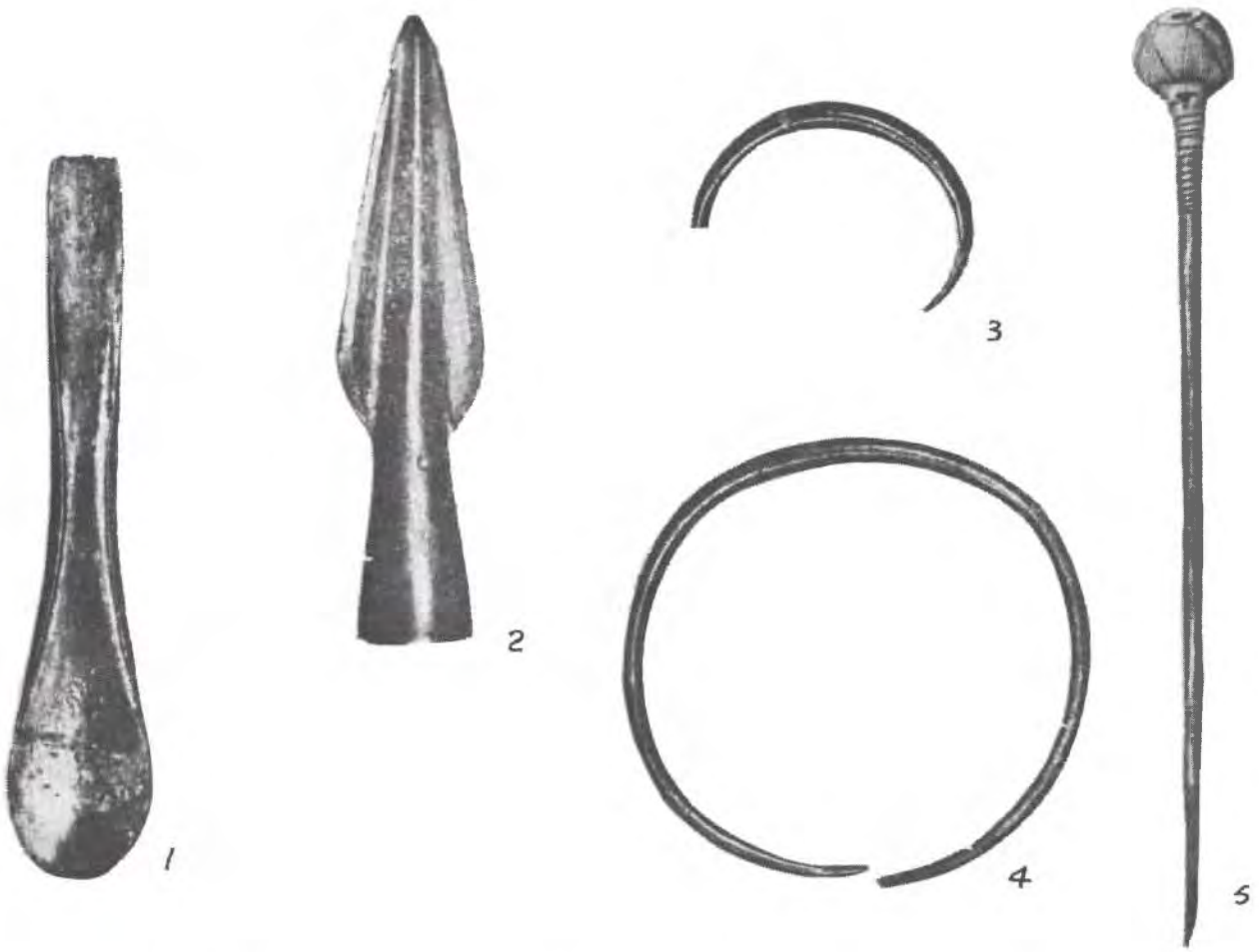


PLATE 45. Late Únětice hoard from Czeszewo near Wągrowiec, Poznan province in western Poland. **1**, flanged axe; **2**, spearhead; **3**, bracelet; **4**, neck-ring; **5**, pin with a globular head. Scale: **1–4**, $^{2}/_{3}$; **5**, $^{1}/_{1}$. *After* Dobrogowski, 1939.



PLATE 46. Late Únětice "Bohemian" axes (**1, 2**) and a flanged axe with a semicircular edge (**3**). **1**, from the cemetery at Kamýk near Prilepy, Bohemia and **2, 3**, from a grave at Slaný, Bohemia. Scale: **1** approx. $^{1}/_{2}$; **2, 3**, approx. $^{2}/_{3}$. *After* Hájek, 1953.



PLATE 47. Pots and sherds from the layer B of the fortified hilltop site Hradisko near Kromeriž, Moravia. **1–5**, sherds from boss-decorated pottery; **6**, **7**, jugs; **8**, terrine; **9**, amphora; **10**, **11**, beakers. Scale approx. $^1/_3$–$^1/_4$. *By courtesy of Archaeological Institute of the Czechoslovak Academy of Sciences in Prague.*

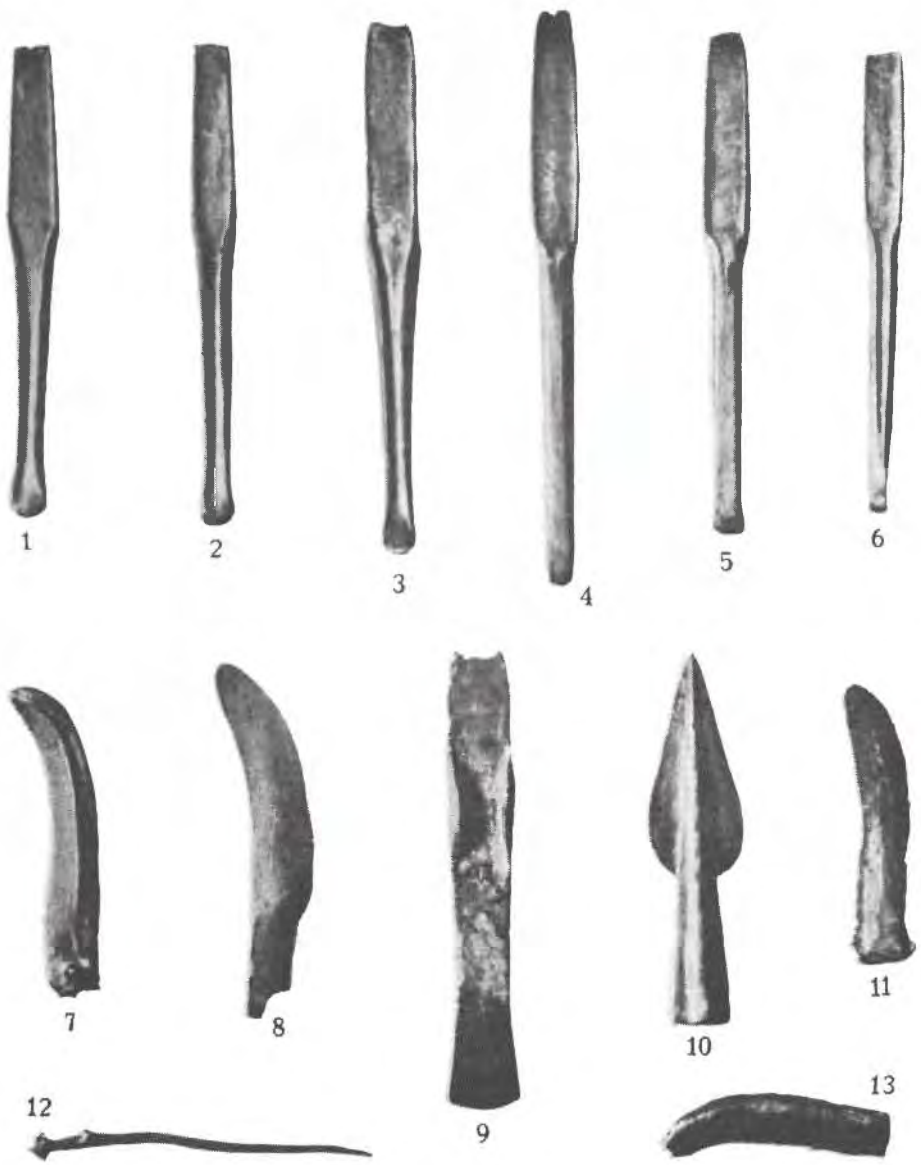


PLATE 48. The bronze hoard of Smedrová, southern Bohemia. "Proto-Tumulus" or beginning of Phase B_1. **1–6**, chisels; **7, 8, 11, 13**, sickles; **9,** median-wing axe; **10**, spearhead; **12,** pin with a conical head. Scale $^1/_3$. *After* Stocky, 1928.



PLATE 49 Pots and bronzes ("sickle" pins, bracelets, a fish-look, a chisel) from the Post-Mad'arovce layer in Nitrianski Hrádok. *By courtesy of the Archaeological Institute of the Slovak Academy of Sciences in Nitra.*

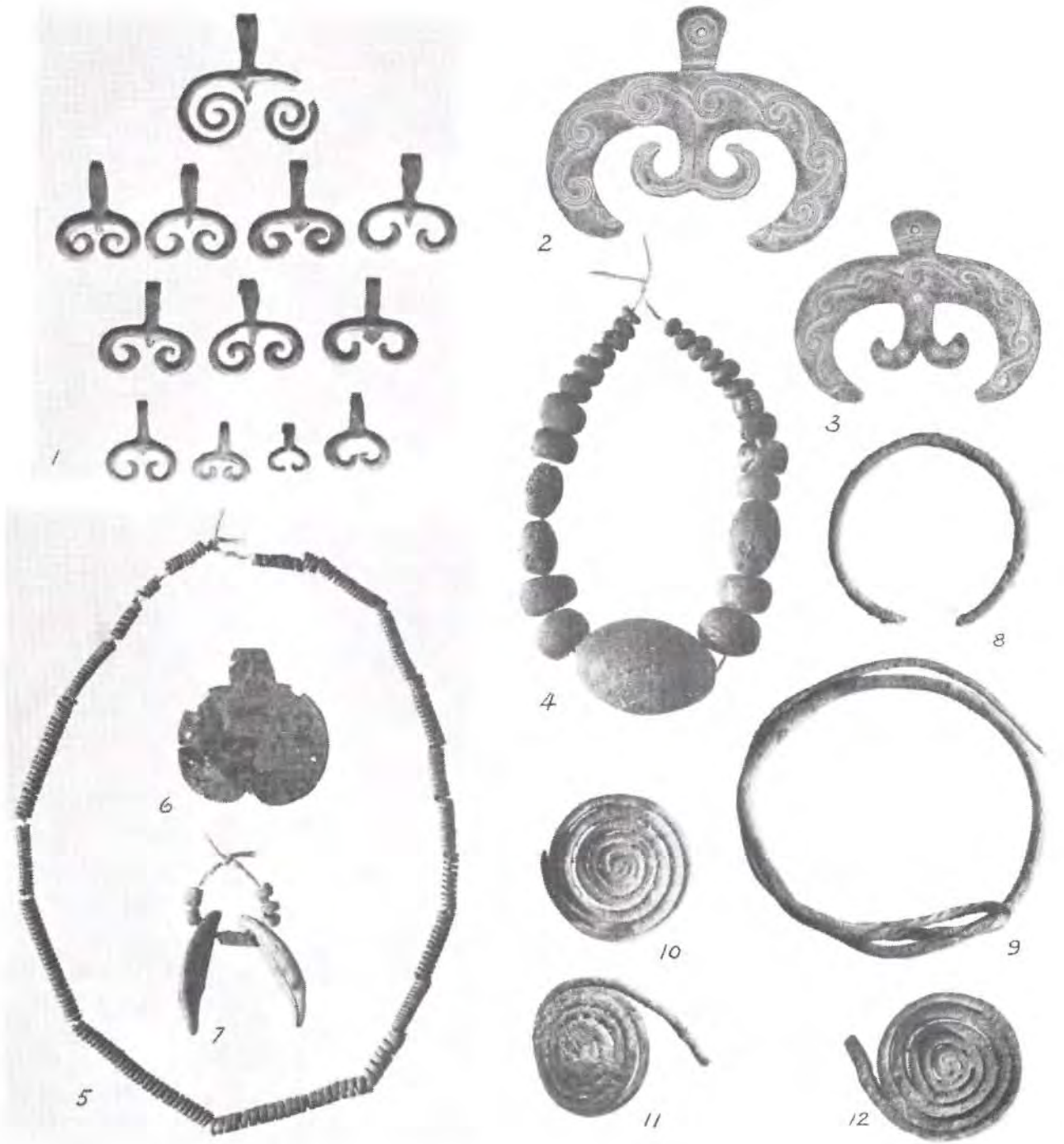


PLATE 50. Bronze hoard from layer I, 2 in the village of Barca, eastern Slovakia. **1–3**, sacred ivy-leaf pendants of bronze; **4**, amber necklace; **5**, necklace of bronze spirals; **6**, bronze pendant; **7**, necklace of faïence beads and the incisor teeth of wild animals; **8**, bracelet; **9**, neck-ring; **10–12**, spiral plates from arm-rings. *After* Hájek, 1957.



PLATE 51. The gold treasure consisting of hair-rings, a necklace, spirals and beads from the fortified village of Barca near osice, eastern Slovakia. *After* Hájek, 1954b.



PLATE 52. A woman's grave (upper part) with finds intact: collar, necklace of blue glass beads and bronze spirals, pins with a chest ornament made of eight rows of bronze spirals intersperced with beads and an arm-ring ending in spirals coiled in opposite directions. The cemetery of Schwarza, Thuringia, barrow No. 2, grave No. 12. Classical Tumulus period of Middle Bronze Age. *After* Feustel, 1958.

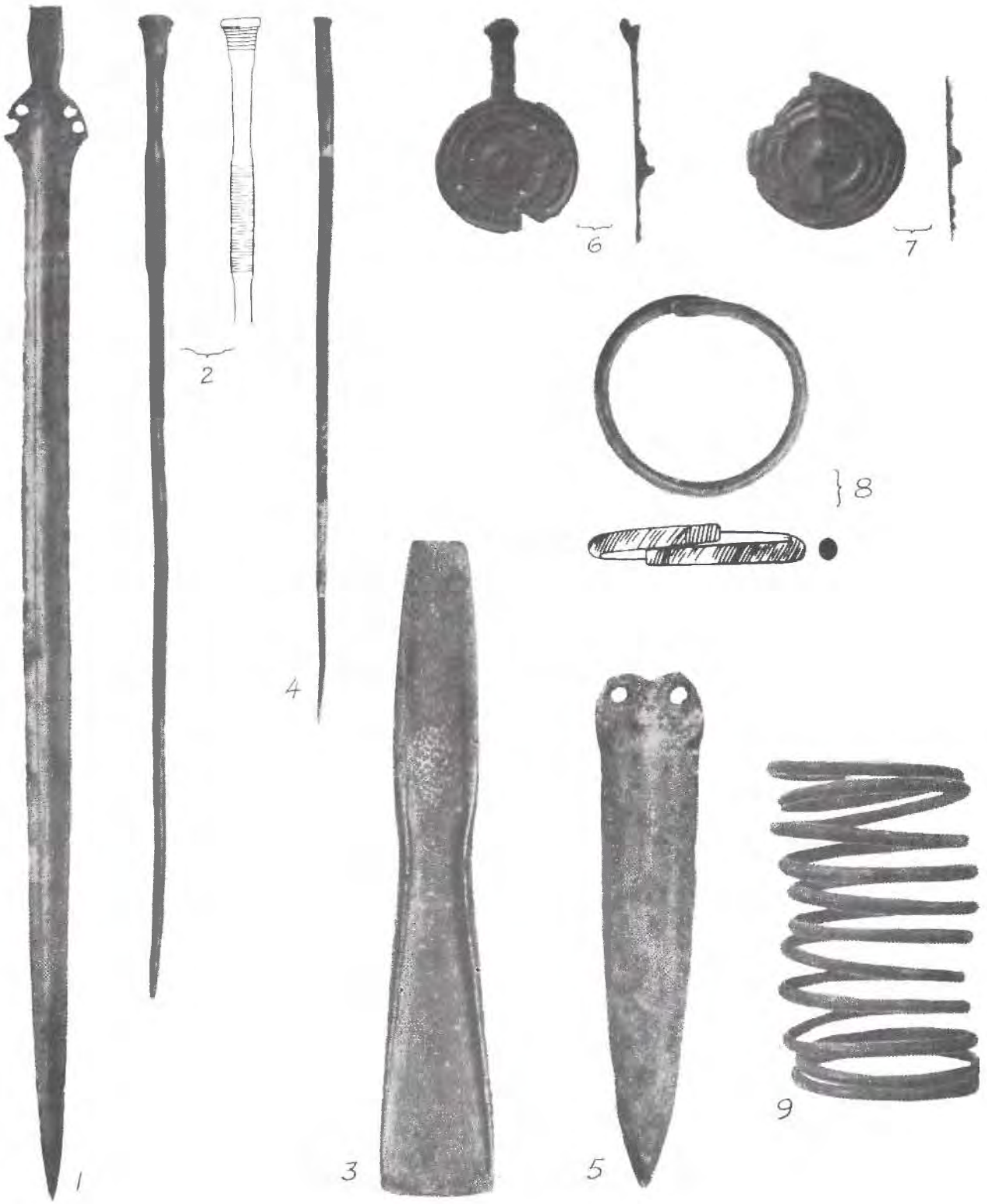


PLATE 53. Finds from a man's grave in the cemetery of Streufdorf, southern Thuringia (grave No. 100). **1**, sword; **2**, **4**, pins; **3**, flanged axe; **5**, dagger blade; **6**, **7**, ornamental plates; **8**, bracelet; **9**, spiral arm-ring. Scale: **1**, approx. $^1/_3$; **2–9**, approx. $^2/_3$. Classical Tumulus period of Middle Bronze Age. *After* Feustel, 1958.



PLATE 54. Amber necklace from the cemetery of Schwarza, Thuringia. Barrow No. 2, grave No. 13. Scale approx. $^{2}/_{3}$. *After* Feustel, 1958.

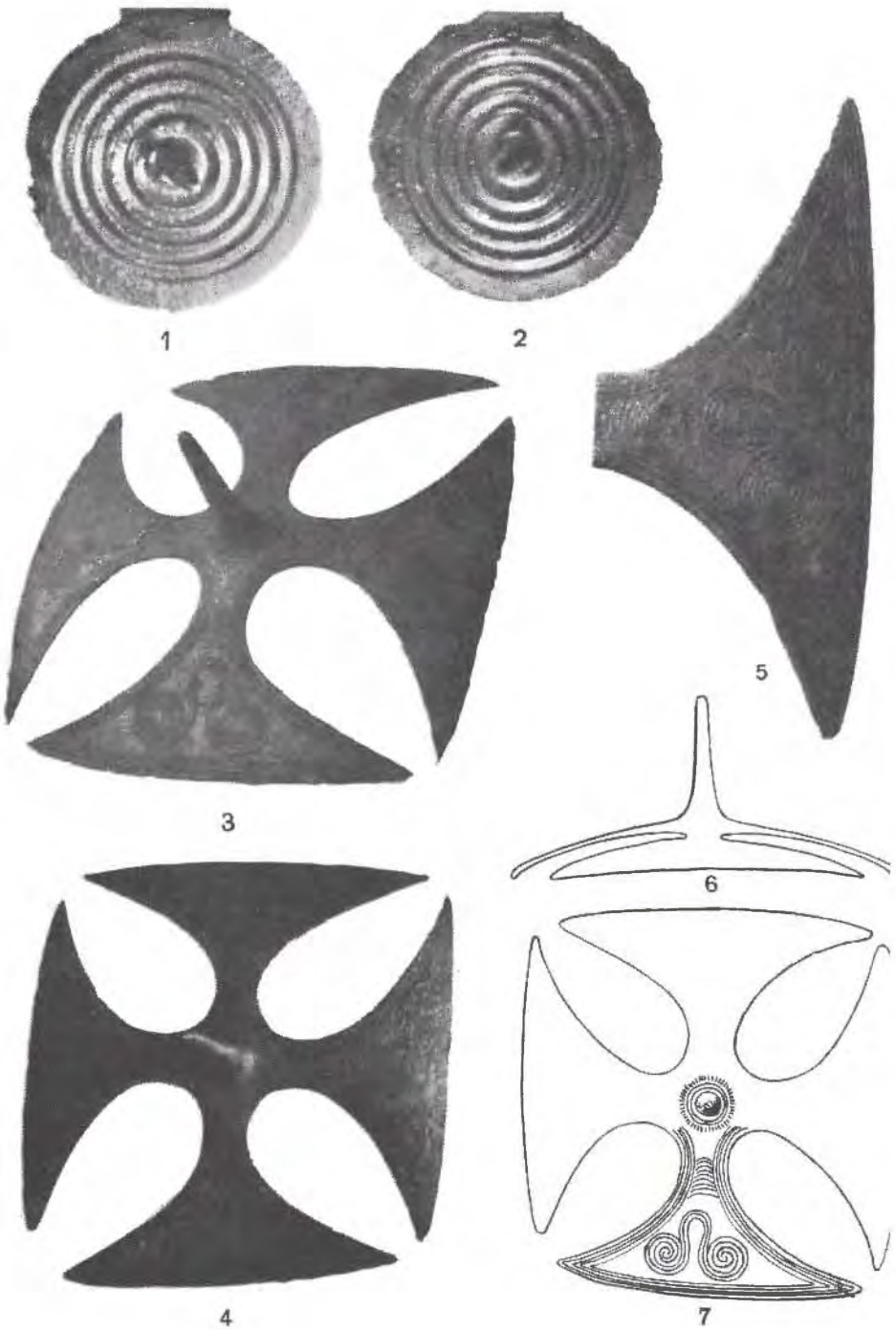


PLATE 55. **1, 2**, circular and **3, 4**, cross-shaped ornamental plates from the cemetery of Pitten, lower Austria. Grave No. 2. **5, 6, 7**, details of the plates 3 and 4. The cross-shaped plates are 10.5 cm. in diameter. Classical Tumulus period of Middle Bronze Age. *After* Willvonseder, 1937.

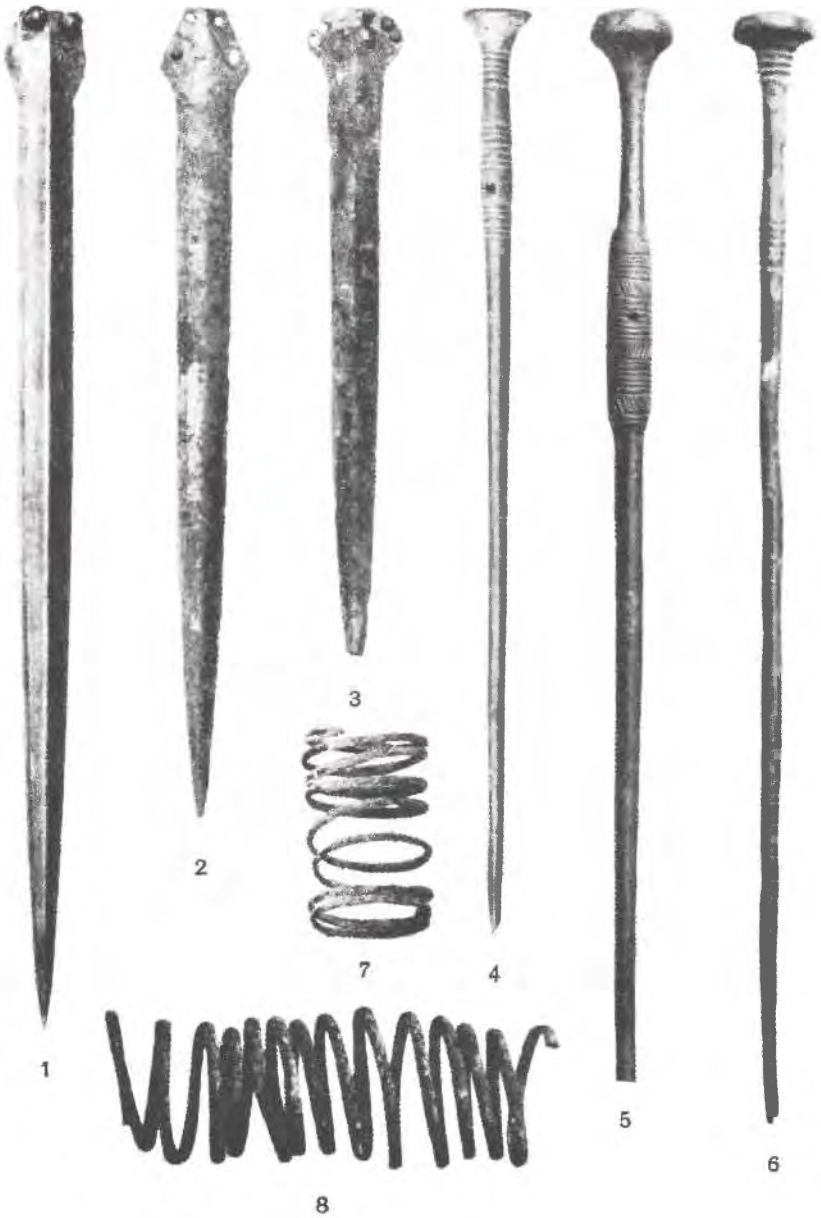


PLATE 56. **1–3**, rapiers; **4–6**, pins; and **7**, **8**, spiral arm-rings from the cemetery of Wimsbach, upper Austria. Classical Tumulus period of Middle Bronze Age. Scale: rapiers approx. $^1/_4$; pins and arm-rings approx. $^1/_2$. *After* Willvonseder, 1937.

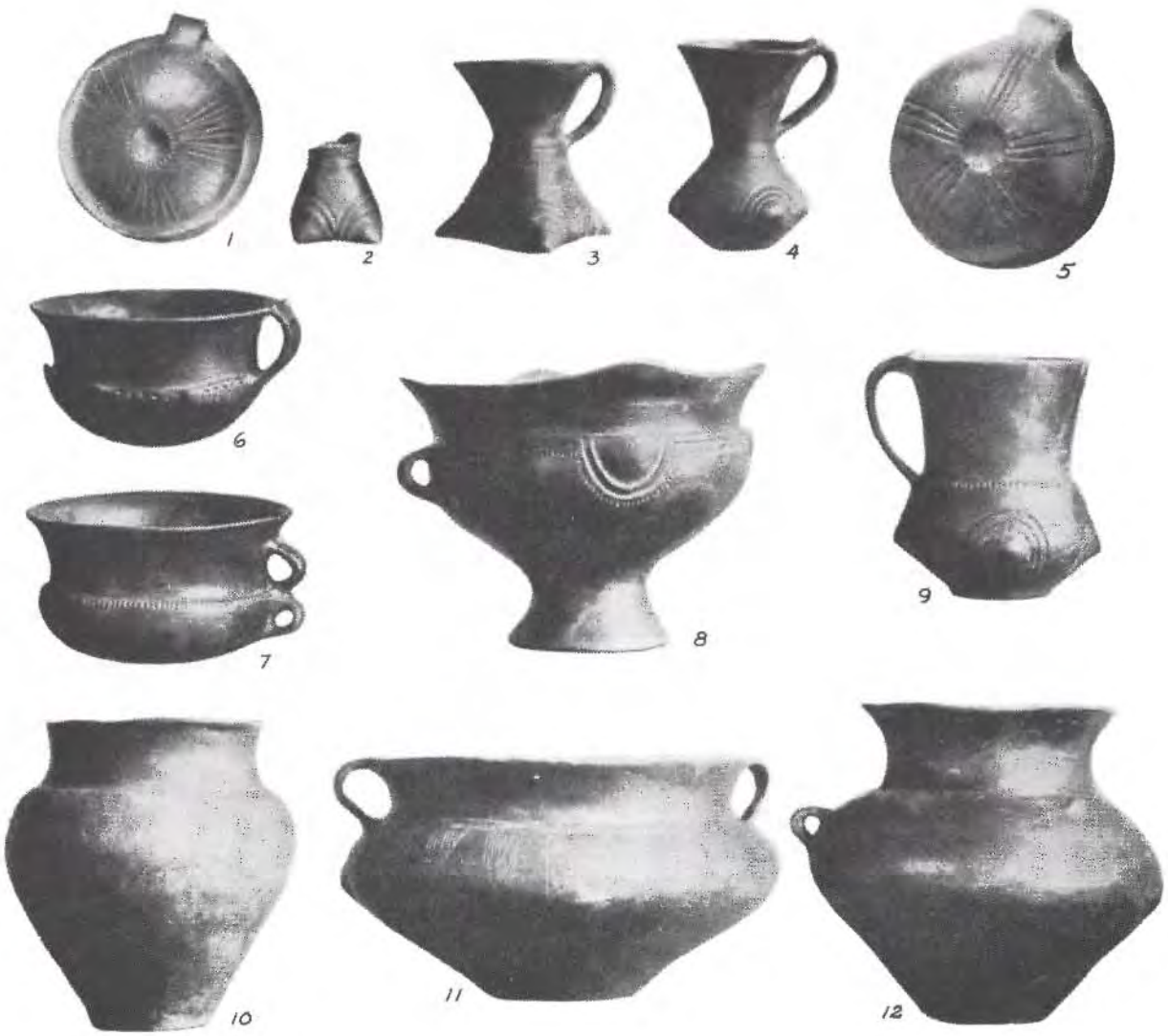


PLATE 57. Middle Bronze Age Tumulus pots from potter's workshop. Basic types from forty found on the spot. **1, 5–7,** cups; **2–4, 9,** jugs; **8,** footed bowl; **10,** beaker; **11,** amphora; **12,** bulging vessel with a small handle. Maisbirbaum, lower Austria. Scale approx. $^1/_5$. *After* Willvonseder, 1937.



PLATE 58. **1**, **2**, urns in graves; **3**, urn; and **4**, **5**, accessory vases from the cemetery of Barca II, eastern Slovakia. Scale approx. $^1/_3$. *After* Jilkovà, 1954.



PLATE 59. Reconstructions of **1**, a house with wattle and daub walls, and **2**, a log cabin from the earlier village of Buchau, southwestern Germany. *After* Reinerth, 1936.



PLATE 60. Slab with an aperture, a "Seelenloch", a concentric circle above it and zigzag decoration. From a stone-cist cremation grave at Illmitz, Burgenland, lower Austria. The slab is 63 cm. long, 35.5 cm. wide at its lower part and 8.5 cm. thick. *After* Willvonseder, 1938.

PLATE 61. Late Lusatian barrows from Gävernitz near Grossenhain, central Germany. *After* Mildenberger, 1959.









PLATE 62. Cult cauldrons from the early Urnfield period. **1**, Milaveč, Bohemia; **2**, Skallerup, Zealand; **3**, Szászvárosszék, Hungary. Scale approx. $^1/_3$. *After* Stocky, 1928 (**1**); Åberg, 1935 (**2**); and Hampel, 1887 (**3**).



PLATE 63. Pottery from the royal tomb at Ockov near Piest'any, western Slovakia. Scale: **1–6**, **8**, **11–13** approx. $^1/_3$; **7**, **9**, **10** approx. $^1/_5$. *After* Paulík, 1962.

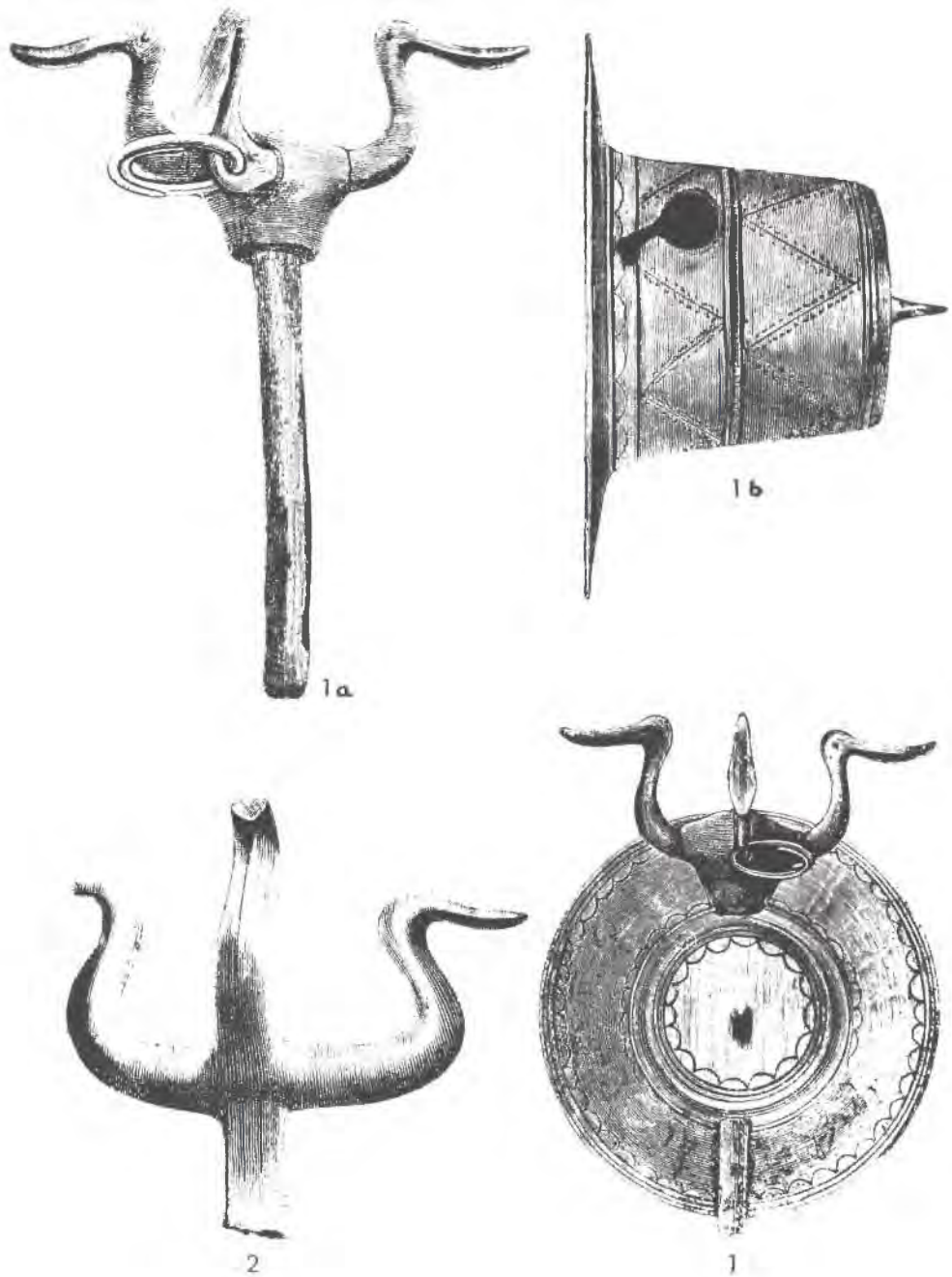


PLATE 64. **1** and **1b**, axle cap and **1a**, **2**, axle pins adorned by three water-bird heads. From the hoard of Komjátna, district of Liptov, Slovakia. *After* Hampel, 1887.

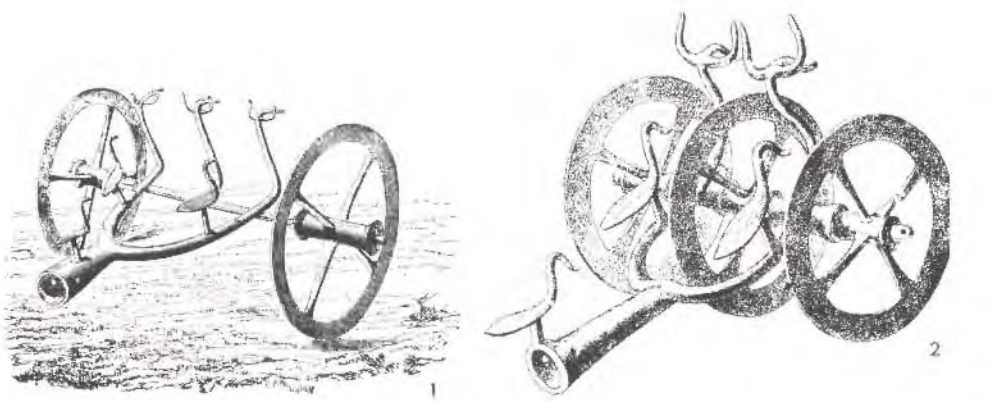


PLATE 65. "Bird wagons": **1**, Burg an der Spree, Brandenburg; **2**, Oberkehle, near Trebnitz, Silesia. Scale $^1/_2$. *After* Chantre, 1886.

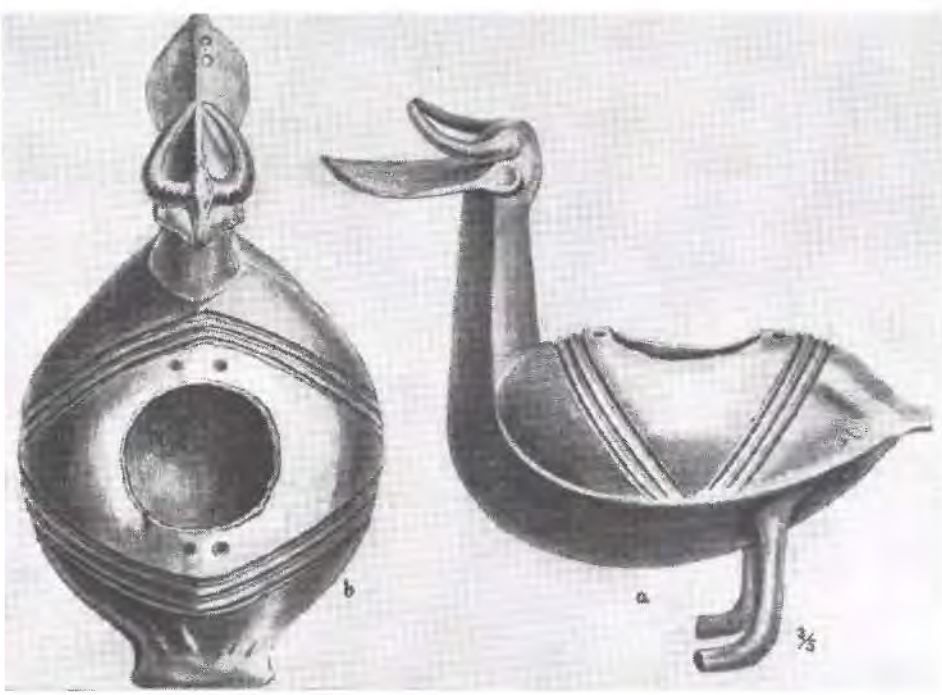


PLATE 66. Vase or lamp in the form of a horned water bird. Top (**b**) and side (**a**) view. Hoard of Csicser, Hungary. Scale $^3/_5$. *After* Hampel, 1887



1

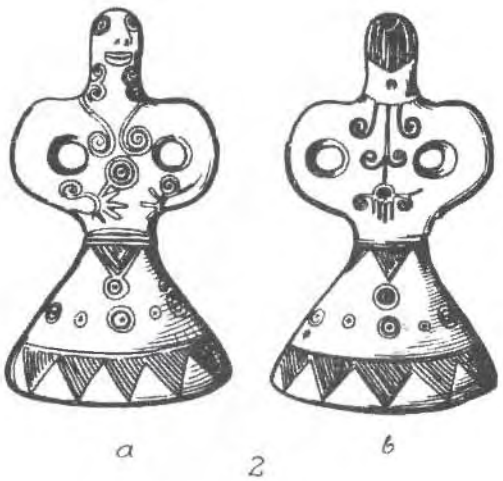
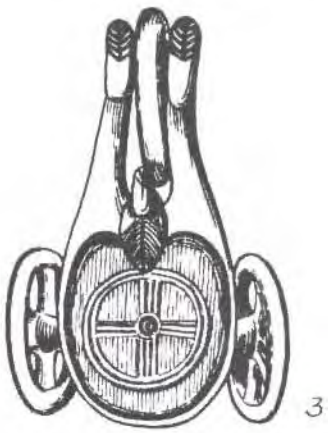


PLATE 67. **1** the bird wagon of Duplaja, northern Yugoslavia; **2,** front and back view of the deity; **3**, the bottom of the wagon. *After* Kossack, 1954.



3

PLATE 68. **1**–**4**, inventory of a cremation grave at Zatec, Bohemia, **1**, fragment of a bronze situla; **2**, bronze cup of Dresden-Dobritz type; **3**, razor; **4**, knife; **5**, greave from Kurim, Moravia. Scale approx. $^1/_3$. *After* Böhm, 1937 (**1**–**4**) and Merhart, 1957 (5).



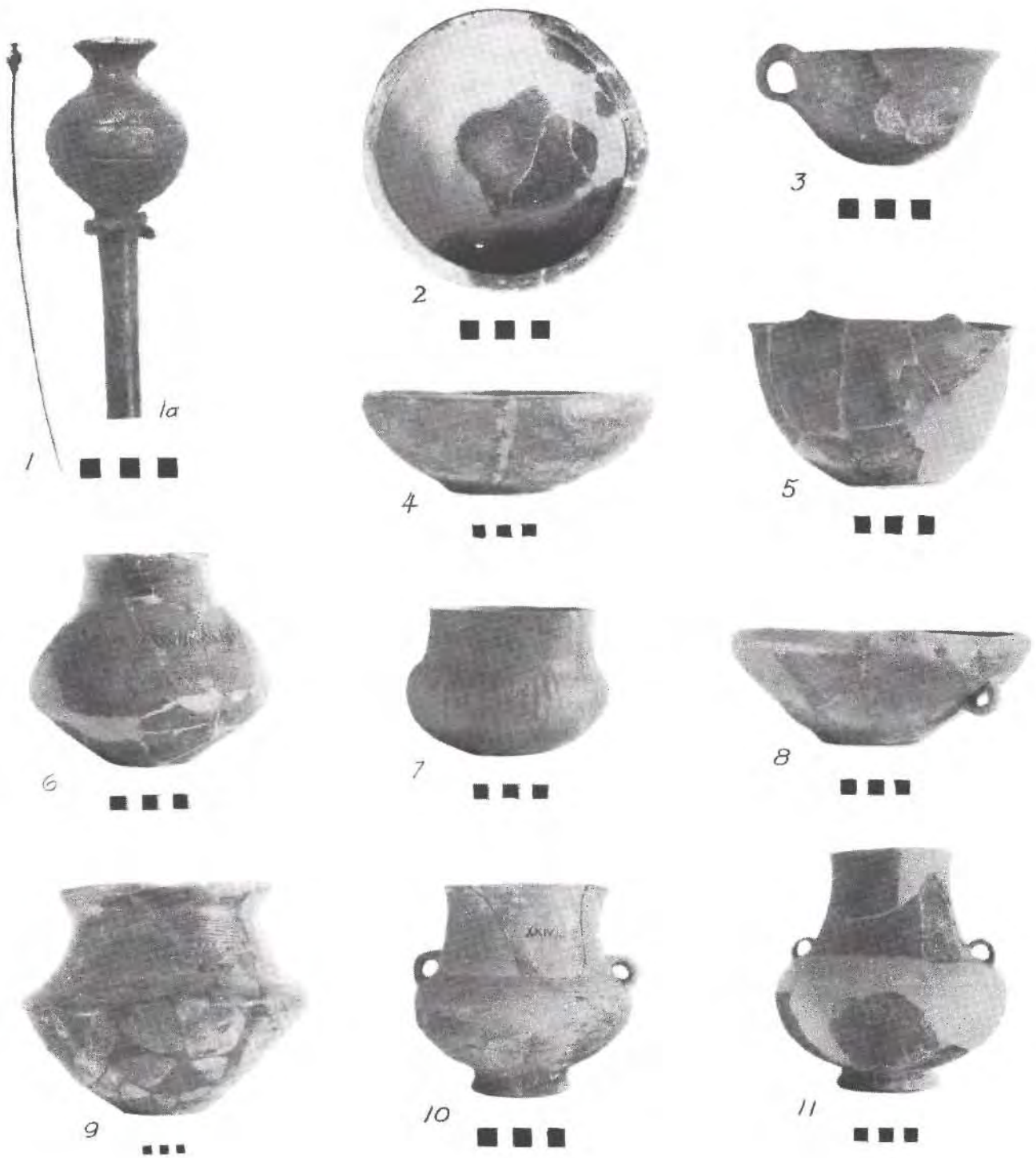


PLATE 69. **1**, vase-headed pin and **2–11**, pots from the cemetery of Neszmely, western Hungary. Middle Danube group of late Urnfield period. *By courtesy of the Archaeological Institute of the Academy of Sciences in Budapest.* Excavations by Dr. E. Patek.



1



2

PLATE 70. **1**, zoomorphic vase from the cemetery of Chotin, western Slovakia, and **2**, double vase from the cemetery of Muzla, western Slovakia. Late Urnfield Middle Danube group. **1**, *after* Dušek, 1956; **2**, *after* Novotná, 1956.



PLATE 71. Inventory of a royal (?) Late Urnfield cremation grave from the cemetery of Klentnice near Mikulov, southern Moravia. Grave No. 63. **1–3, 6, 7, 9, 11,** pottery vases, scale approx. $^1/_4$; **4,** fragment of a bronze razor; **5,** bronze rings; **8,** sword with an antennae pommel, 105 cm. long; **10,** knife, 9.7 cm. long. *After* Říhovský, 1956.

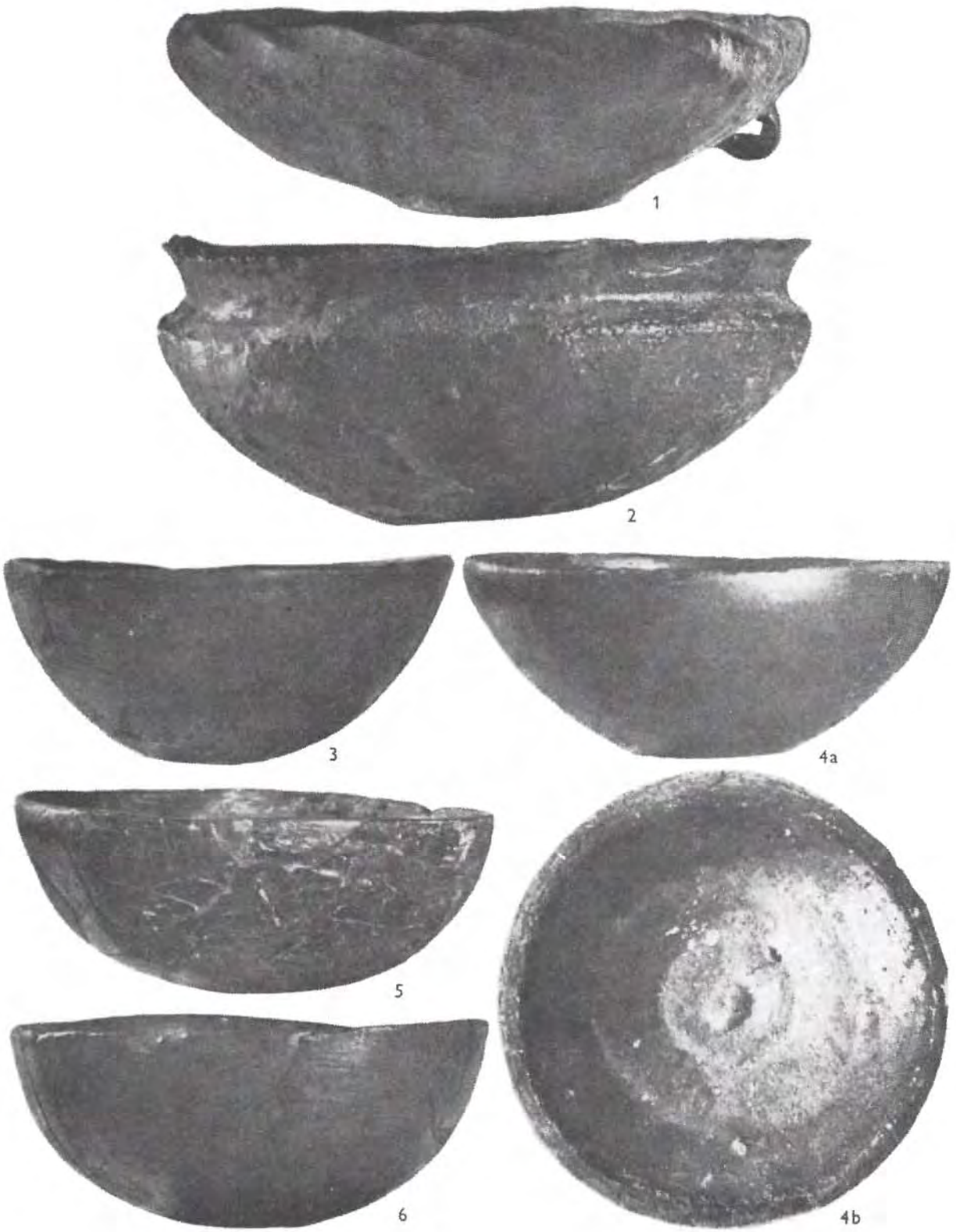


PLATE 72. Dishes from the cremation grave No. 63 of the cemetery at Klentnice, southern Moravia. Scale approx. 1/3. *After* Říhovsky, 1956a.



PLATE 73. Late Lusatian pottery from the cemetery of Biezdrowo-Zakrzewo, district of Szamotuly, western Poland, including a variety of cups, a dish, an amphora, a horn-shaped drinking vessel, a rattle and cylindrical stamps. Scale approx. $^1/_4$.



PLATE 74. Late Lusatian pottery from **1–3**, the cemetery of Biezdrowo-Zakrzewo, near Szamotuly, and **4**, of Kowalewka near Oborniki, western Poland. **1**, bird figurine; **2**, triple-mouthed cup; **3**, footed vessel; **4**, cup with a high neck. Scale approx. $^1/_4$. *By courtesy of the Archaeological Museum in Poznan.*



PLATE 75. **1**, human foot of clay; **2**, amber beads; **3**, zoomorphic vessel, representing a pig. From the late Lusatian cemetery of Sierpow, district of Łęczyca, central Poland. Scale: **1**, **3**, $^{2}/_{3}$; **2**, $^{1}/_{2}$. *After* Ber, 1938.

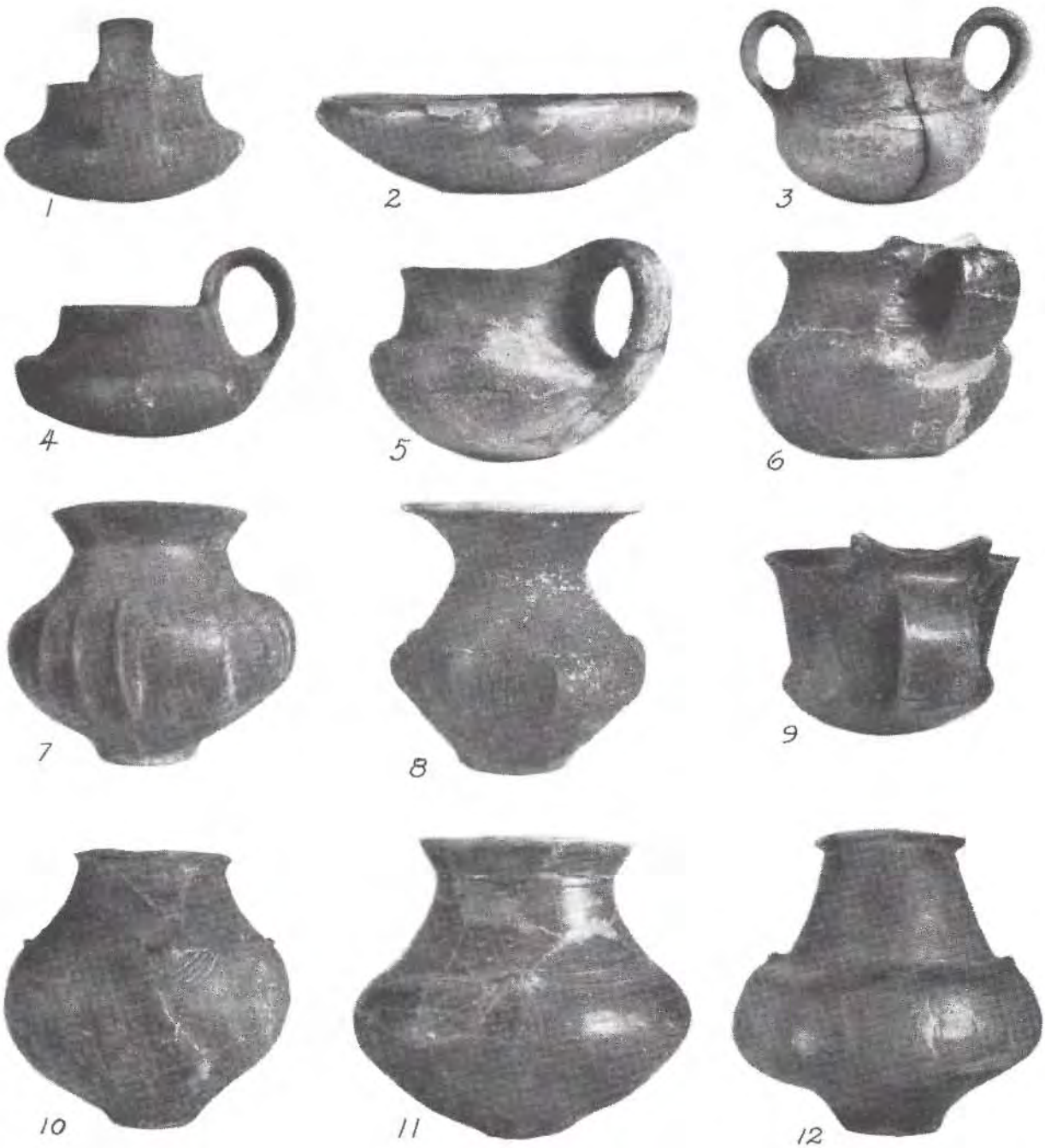


PLATE 76. Pottery from the cemetery of Mezöcsat, south of Miskolc, northeastern Hungary. Final Bronze Age–Beginning Iron Age. Scale: **1–6, 9** approx. $^1/_2$; **7, 8, 11** approx. $^1/_5$; **10, 12** approx. $^1/_6$. *By courtesy of the Archaeological Institute of the Academy of Sciences in Budapest.* Excavations by Dr. Patek.



PLATE 77. Pottery from the habitation site of Somotor, district Kralovy. Chlmec, eastern Slovakia. **1**, vase; **2**, **3**, dishes; and **4**, torso of a stylized ram (?), front and side view. Scale **1–3**, approx. $^1/_4$; **4** approx. $^1/_2$. *After* Pastor, 1958.

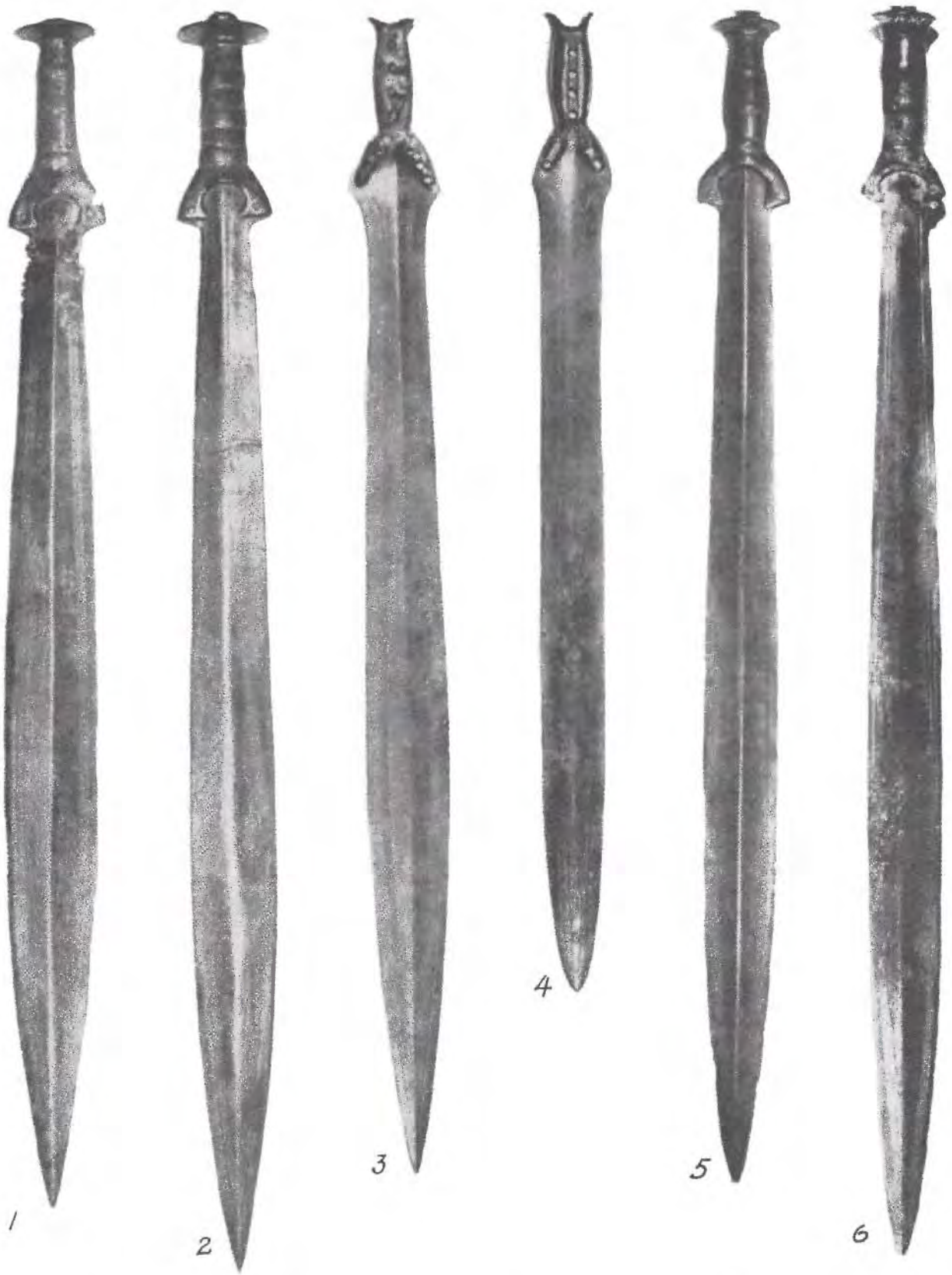


PLATE 78. Swords from the hoard of Vysný Sliac, district of Ružomberok, Slovakia. **1**, **2**, **5**, **6**, bronze-hilted swords of Liptov type; **3**, **4**, flange-hilted swords. Length: **1**, 62.5 cm.; **2**, 70.5 cm.; **3**, 61.5 cm.; **4**, 56 cm.; **5**, 66.5 cm.; 6, 70.5 cm. *After* Uhlár, 1959.



PLATE 79. **1, 3,** beakers and **2,** wide-mouthed pot from the village of Rzucewo, district of Wejherowo in eastern Pomerania. Scale approx. $^1/_4$. *By courtesy of the Archaeological Museum in Poznań.*

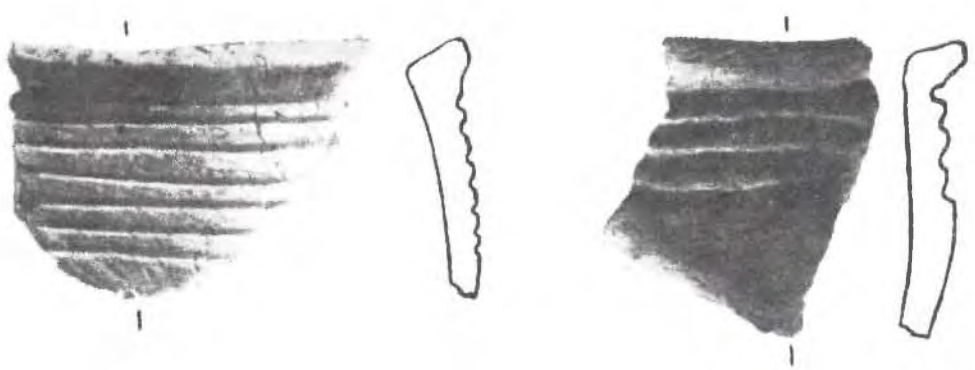


PLATE 80. Baltic Early Bronze Age pottery from the stratified habitation site of Akali on the lower Emajõgi at Lake Chud in Estonia. *After* Janits, 1959.

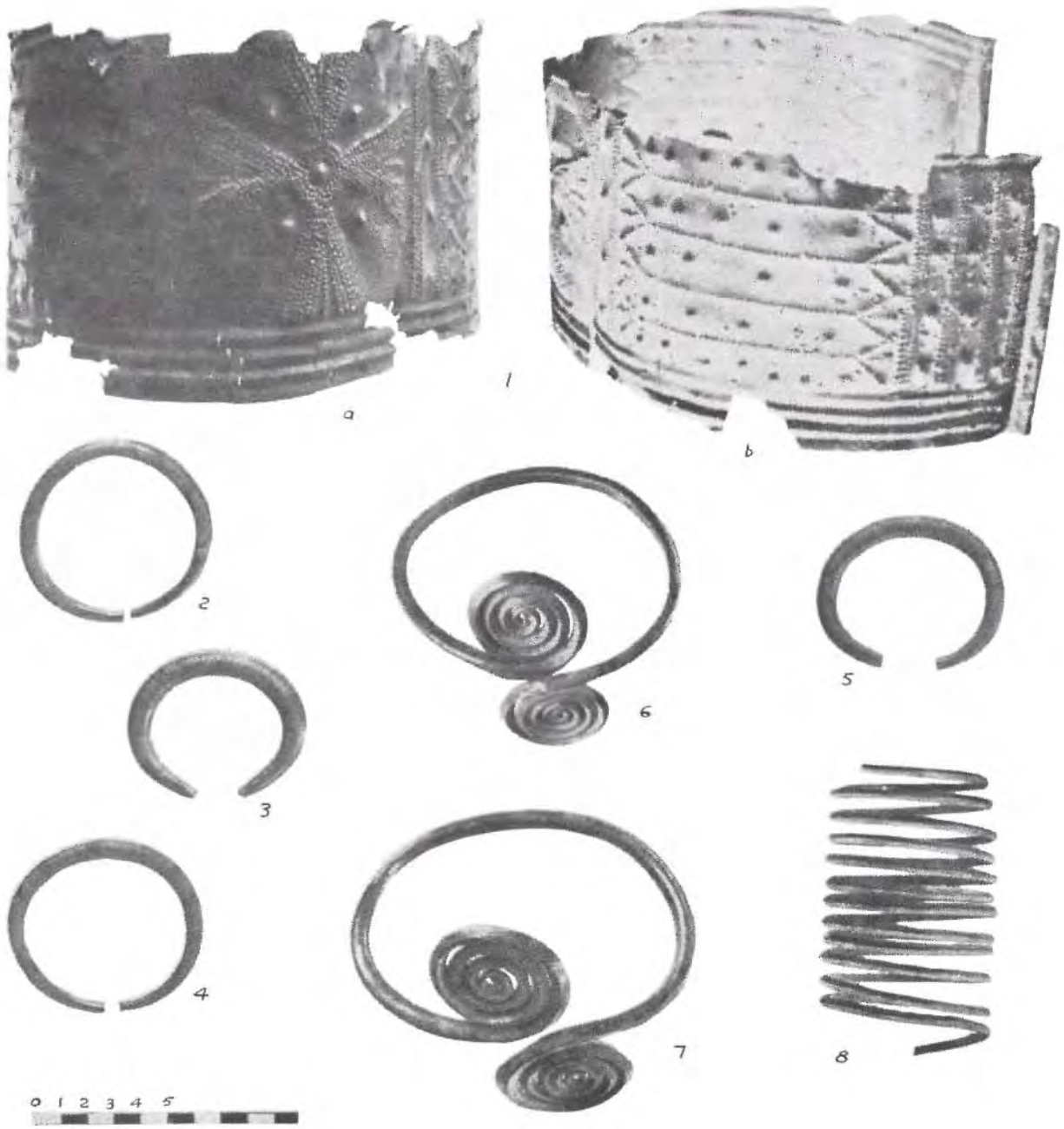


PLATE 81. Dratów hoard, south of Puławy, eastern Poland. **1 a** and **b**, diadem; **2–5**, bracelets; **6**, **7**, arm-rings with spiral-plate ends **8**, spiral arm-ring. *After* Gardawski and Wesolowski, 1956.



PLATE 82. Bronze axe from Schwichtenberg, district of Demmin, Pomerania. Length: 16.8 cm. *After* Arbman, 1933.

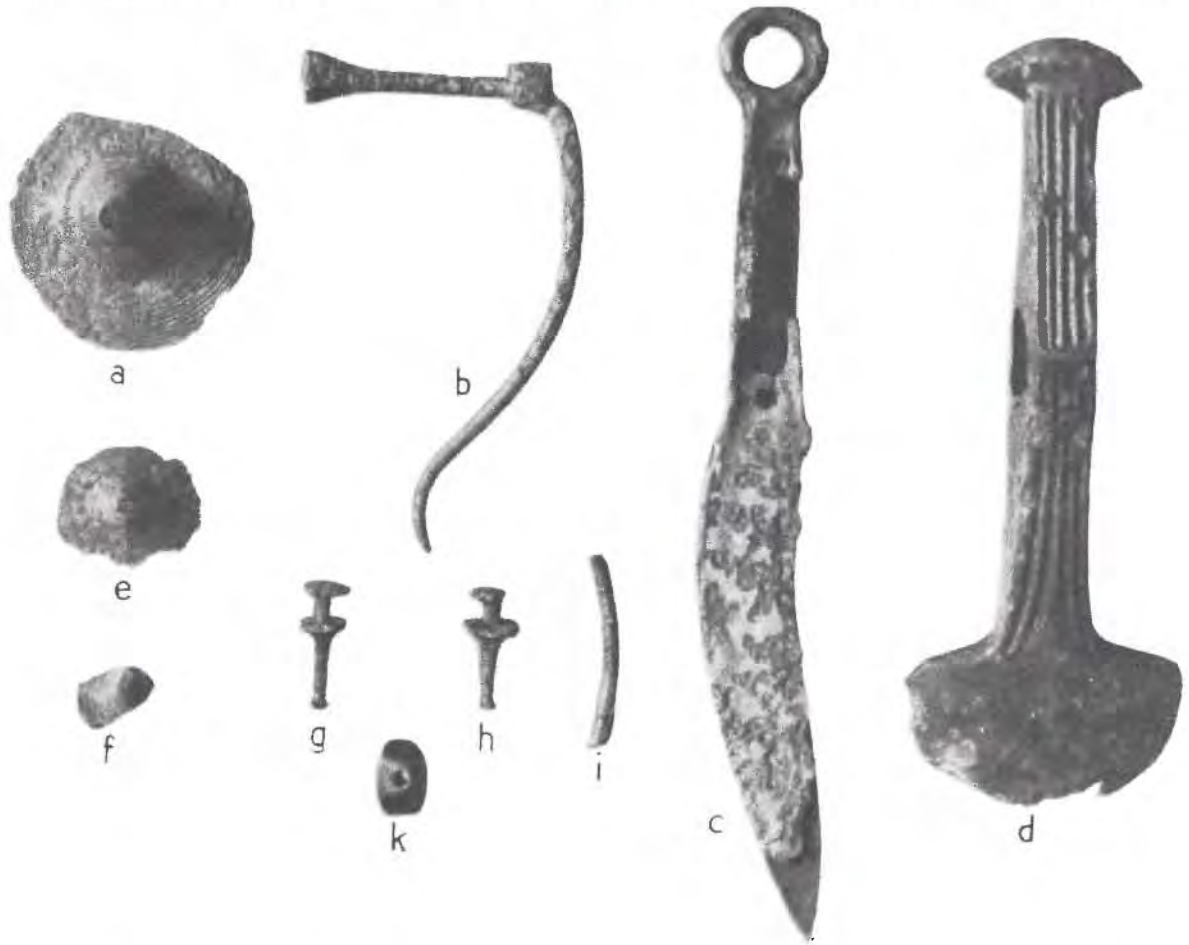


PLATE 83. Finds from the tumulus at Alknikiai (Alknicken), district of (formerly)Fischhausen, Samland. **a, e, f–h,** tutuli (ornamental plates and their fragments); **b,** pin with a widening cylindrical head; **c,** knife; **d,** Baltic axe of Classical II type;



1



2

PLATE 84. **1**, the vault of field stones covering the urn-grave in the center of a late Bronze Age barrow; **2**, the vault opened showing the urn in a stone cist. Dammwalde, Samland. *After* Engel, 1935.



PLATE 85. Plan of a Late Baltic barrow with a stone ring and stone structure. Georgenswalde, district of former Fischhausen, Samland. *After* Engel, 1935.



PLATE 86. A Baltic Late Bronze Age socketed celt from Zygaiciai near Sveksna, western Lithuania. Scale $^1/_1$. *By courtesy of the Archaeological Museum in Kaunas.*



PLATE 87. Pot (two views) from the stone cist at Horodnytsja, upper Dniester area. 14.2 cm. high. Bilopotok period (latter part ?) of the North Carpathian culture. *After* Rogozinska, 1959.



PLATE 88. Pots (**1**, **2**, **4**–**9**) and flint celt (**3**) from the cemetery of Bukivna near Tlumach, western Ukraine. Middle Bronze Age Komarov period of the North Carpathian culture. Scale: pots approx. $^1/_4$; celt 10 cm. long. *After* Rogozińska, 1959.

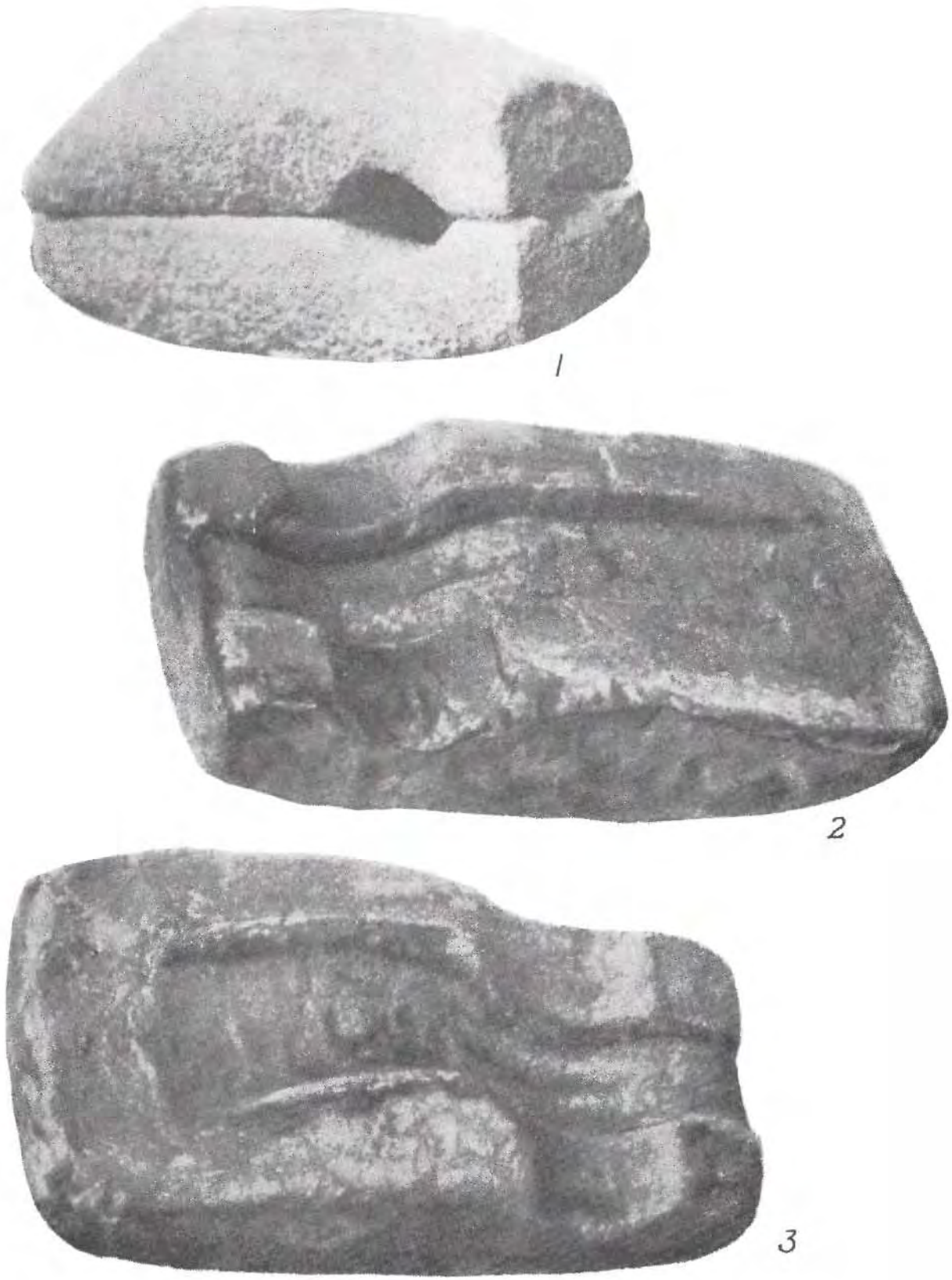


PLATE 89. Stone mold for an axe found near the village of Zilgi, district of Ordzhonikidze, central northern Caucasus. **1,** both parts together; **2, 3,** shown opened. *After* Uvarova, 1900 (**1**) and Krupnov, 1951 (**2, 3**).



1



2

PLATE 90. **1**, fragment of a stone stela made of limestone slab with pits and solar wheel engraving, from tumulus No. 11 of the cemetery of Salgir, Crimea; **2**, stone-cist grave after excavations from tumulus No. 6 of the same cemetery. *After* Shults and Stoljar, 1958.



PLATE 91. A limestone slab with engravings of axes, human figures, footsteps, and other symbols from a stone cist in the cemetery of Krasnaja Gora near Simferopol, Crimea. *After* Tallgren, 1934.



PLATE 92. **1–3**, copper objects from the cemetery of Usatovo: **1**, **2**, daggers, **3**, flat axe; **4**, bull's head carved of sandstone plate (a sceptre-head ?) found in the central grave of tumulus No. 9 in the cemetery of the river Salgir, Crimea. Scale: **1–3**, approx. $^1/_2$; **4**, 16 cm. long. **1–3**, *after* Shovkopljas, 1957; **4**, *after* Shults and Stoljar, 1958.



PLATE 93. Pottery from the stratified habitation site of Gorodok near Putivl', district of Sumy, northern Ukraine. **1, 2,** late comb- and pit-marked pots of so-called "Mar'janivka" type from the lower layer; **3, 4,** North Pontic pottery from the middle layer; **5, 6,** pots from the upper layer belonging to the Early Iron Age Jukhnovo group of the Baltic Culture. *After* Berezanskaja, 1957.

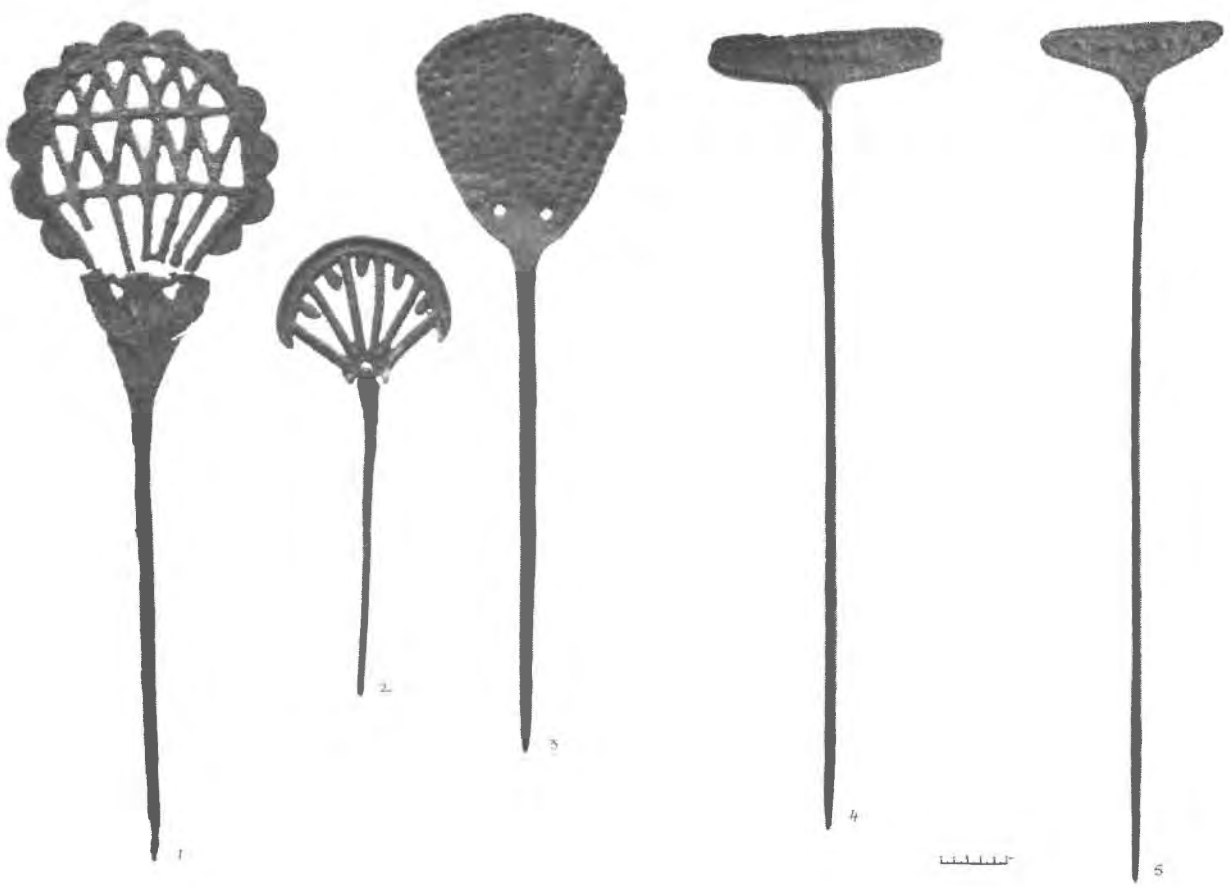


PLATE 94. Pins from Kumbulta, central northern Caucasus. Faskau phase. From the collection of Countess Uvarova. *By courtesy of the State Historical Museum in Moscow.*

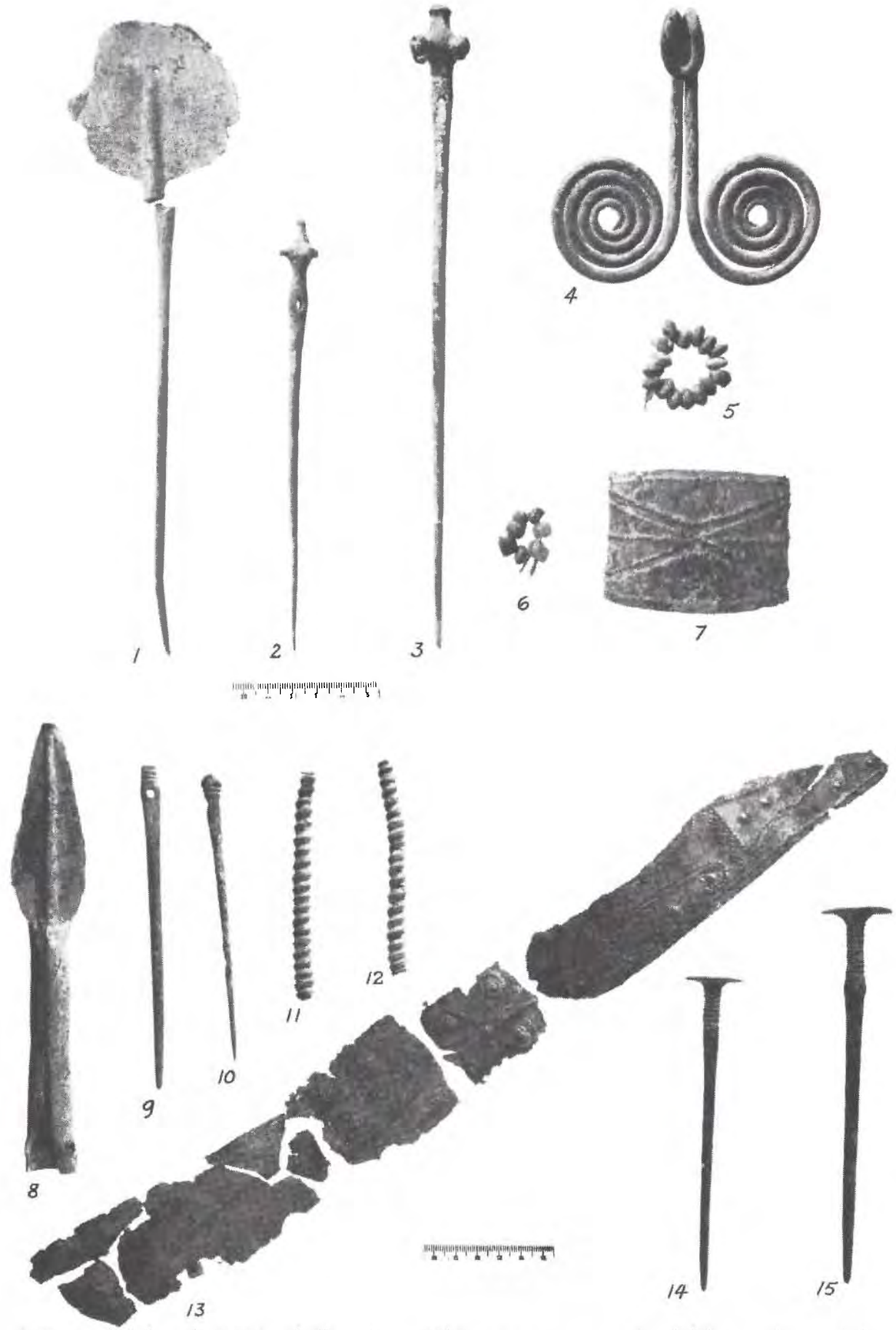


PLATE 95. Finds from the cemetery of Tli, southern Ossetia. **1–3**, **9**, **10**, **14**, **15**, pins; **4**, belt hook; **5**, bronze beads; **6**, bronze and precious stone beads; **7**, bracelet made of bronze sheet; **8**, spearhead; **11**, **12**, spiral tubes; **13**, belt made of bronze sheet with pointille decoration. From the excavations by Countess Uvarova. *By courtesy of the State Historical*

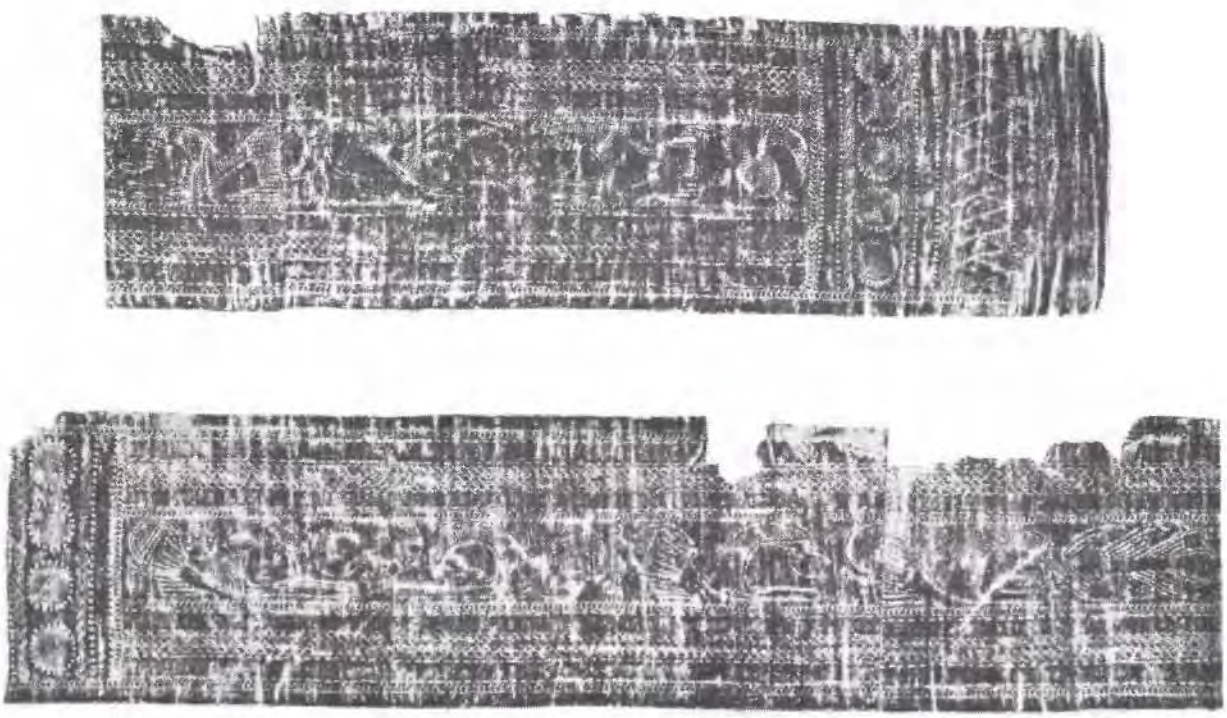


PLATE 96. Belt plate of Urartian type found in Podgortsa, south of Kiev. *After* Uvarova, 1900.

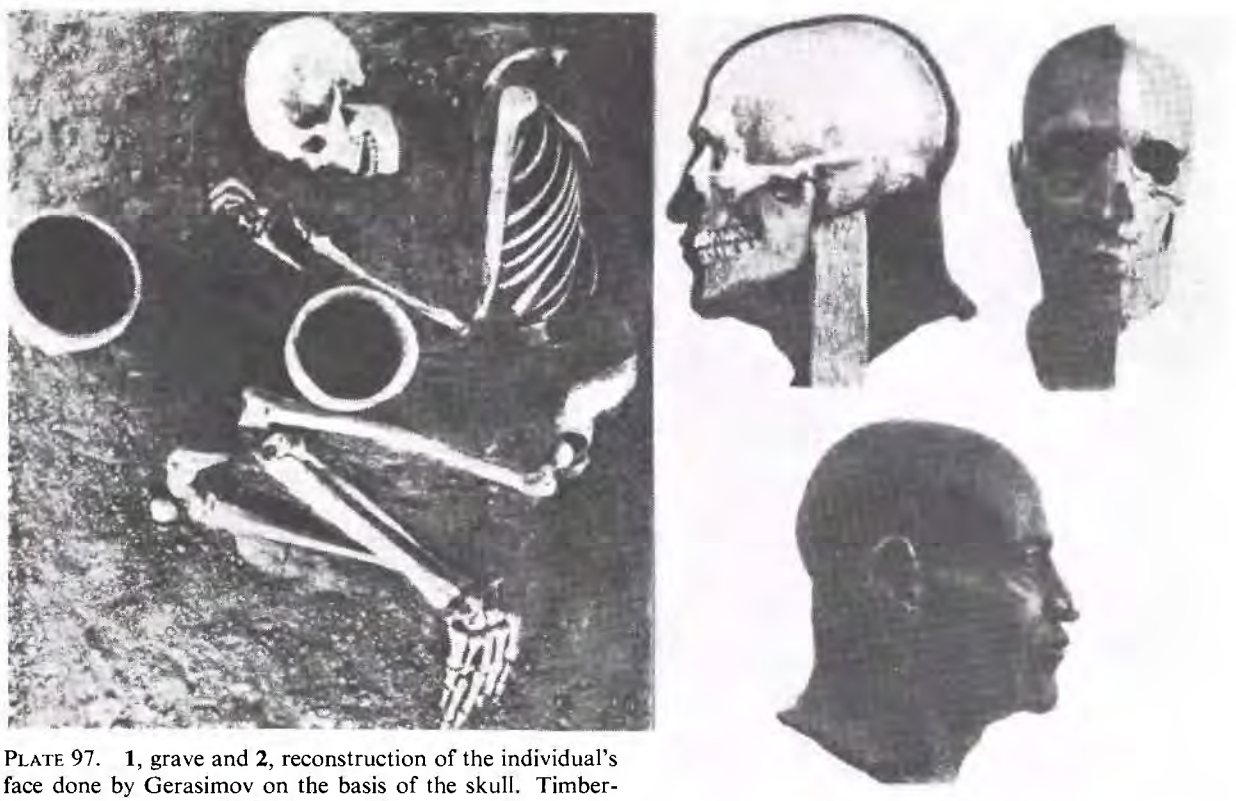


PLATE 97. **1**, grave and **2**, reconstruction of the individual's face done by Gerasimov on the basis of the skull. Timber-grave cemetery at Kajbely, lower Volga area. *After* Gerasimov, 1955.

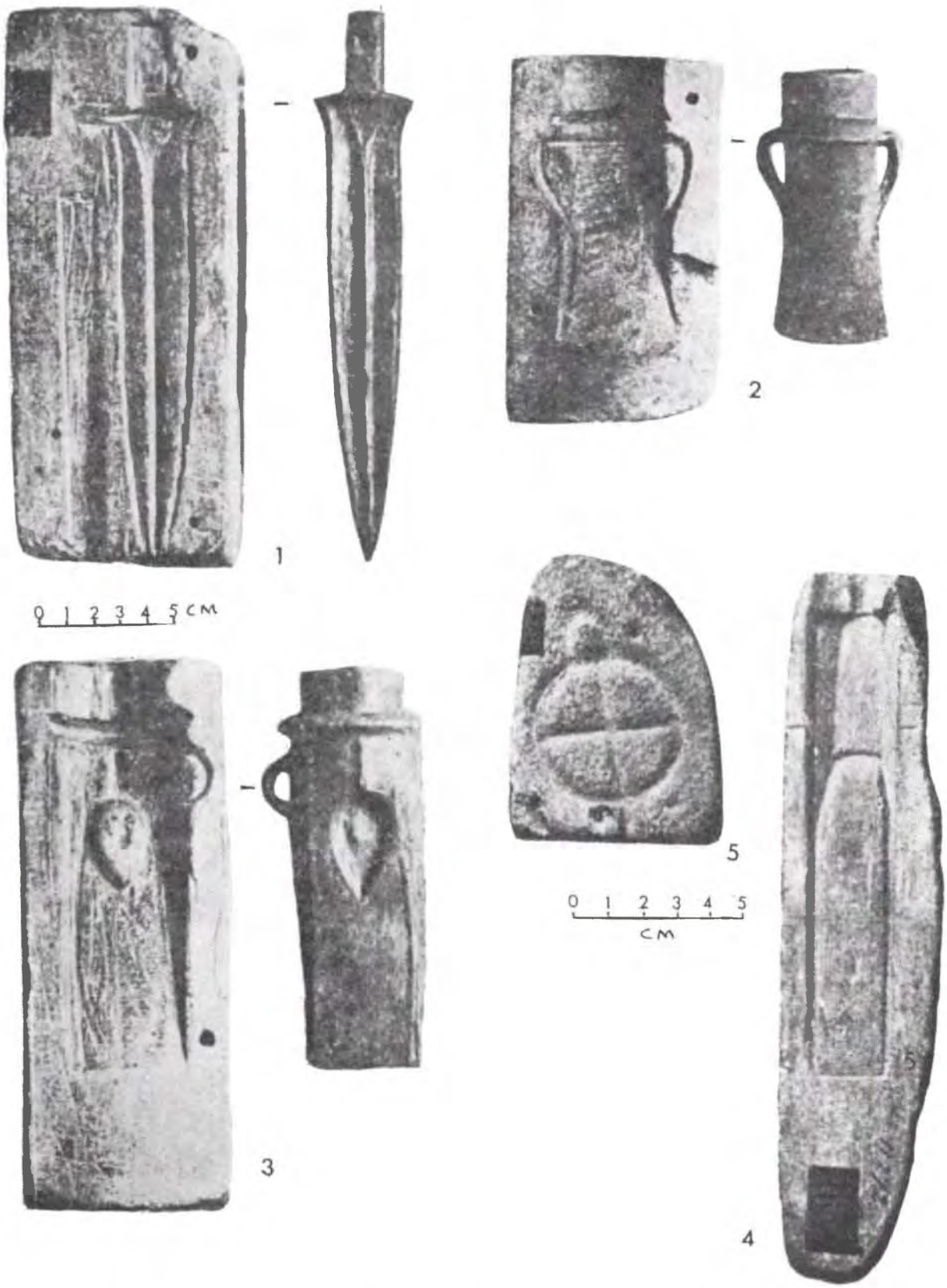


PLATE 98. Soapstone molds for daggers (**1**), celts (**2**, **3**), chisels (**4**) and ornaments (**5**), and casts from the foundry of Kardashinka at the Dnieper mouth. *After* Tallgren, 1926.

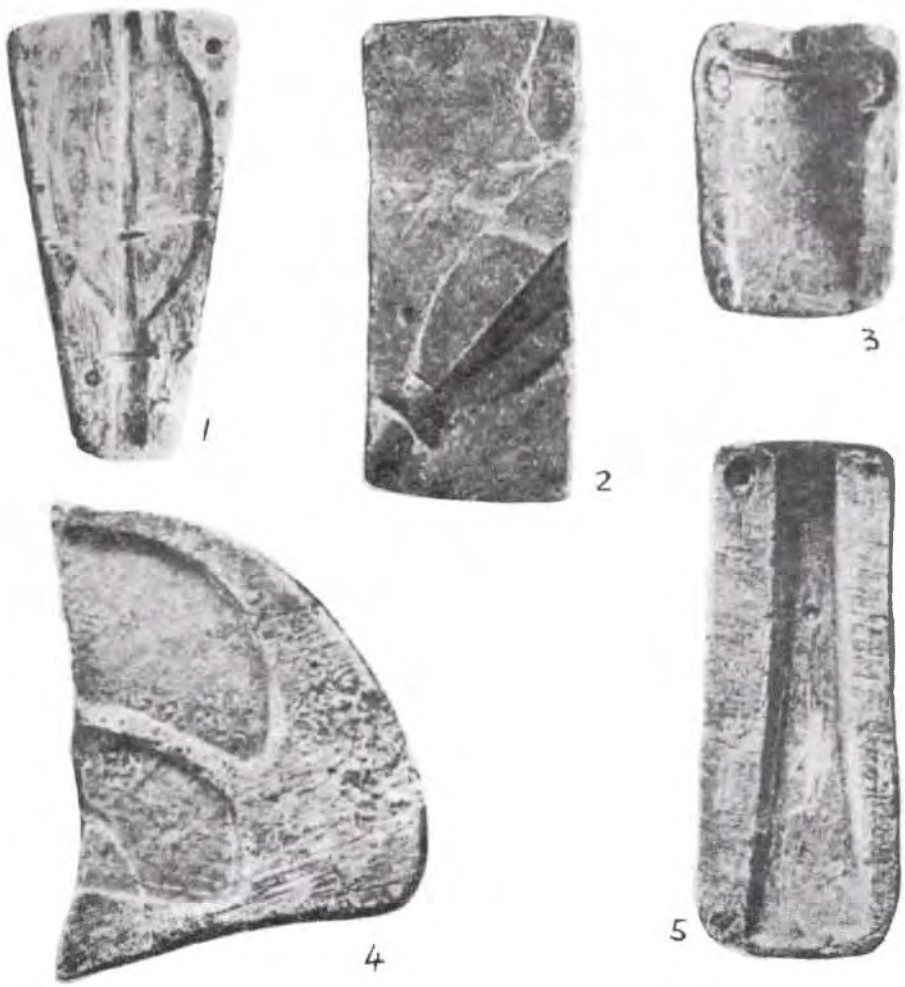


PLATE 99. Soapstone molds from the foundry of Derevnaja near Kiev. **1**, **2**, for spearheads; **3**, for a socketed celt; **4**, for sickles; **5**, for a chisel. Scale approx. 1/5. *After* Tallgren, 1926.

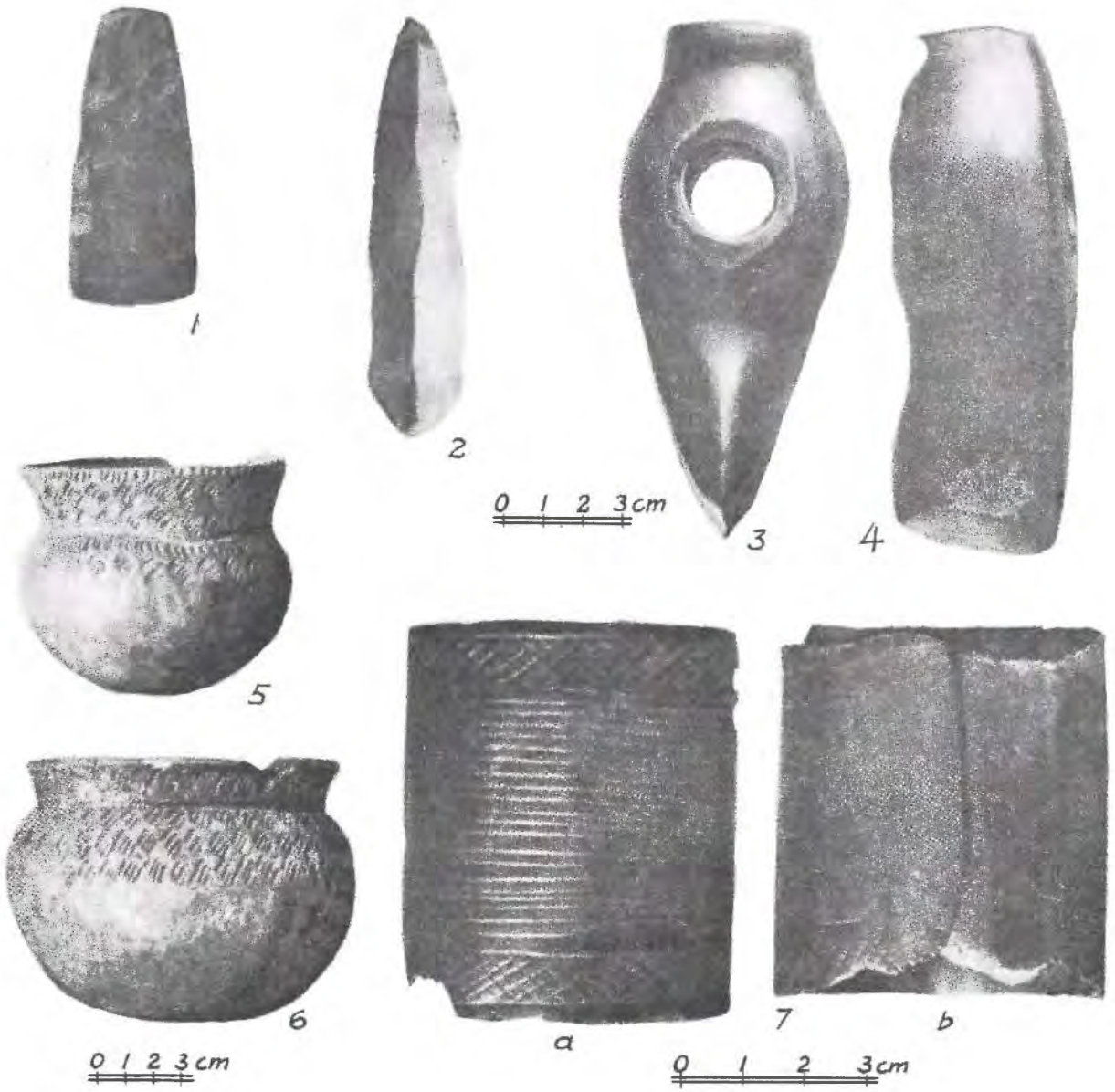


PLATE 100. Fat'janovo finds from the cemetery of Mytishchi, district of Ivanovo, upper Volga area. **1**, flint celt; **2**, flint knife; **3, 4,** stone axe; **5, 6,** pots; **7,** cuff-shaped bracelet. **5–7,** grave No. 1. *After* Bader, 1959.

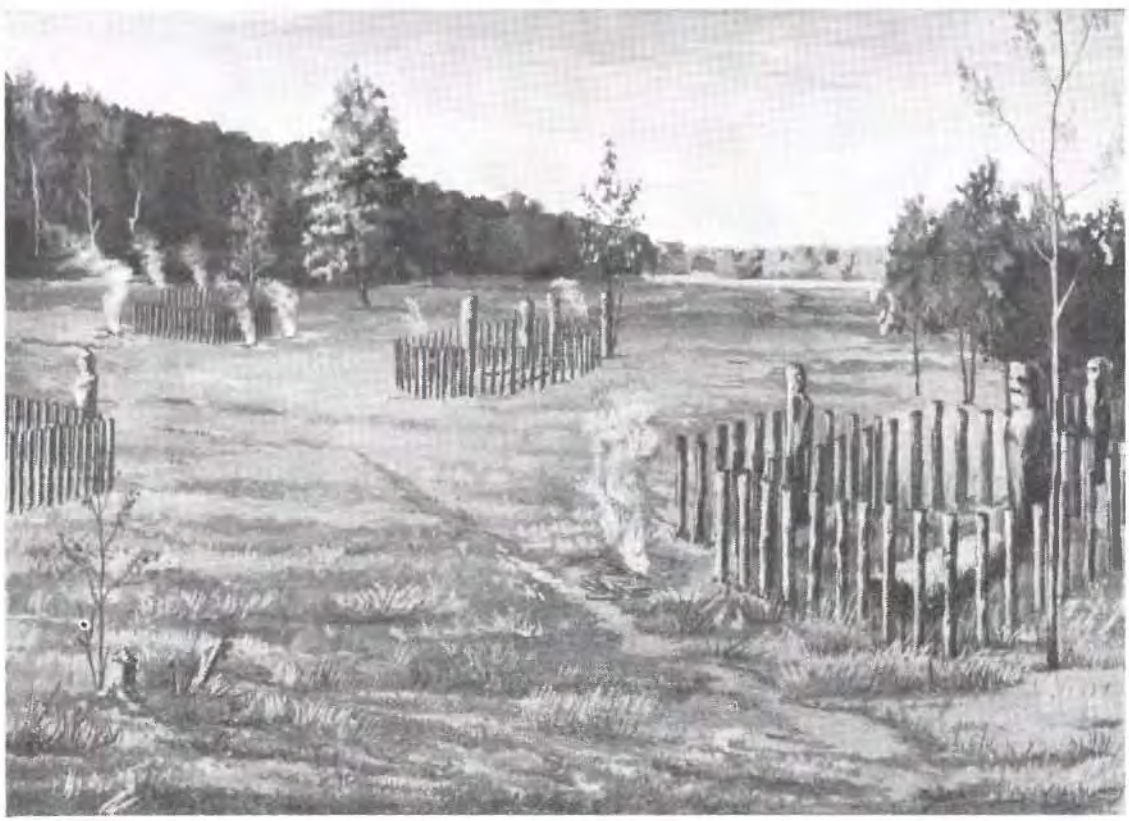


PLATE 101. Reconstruction of timber fences surrounding graves and tombstones of the cemetery of Pikshiki near Cheboksary, Chuvashia, by excavator N. Ja. Merpert (1958). Middle Bronze Age Abashevo period of the Fat'janovo culture.

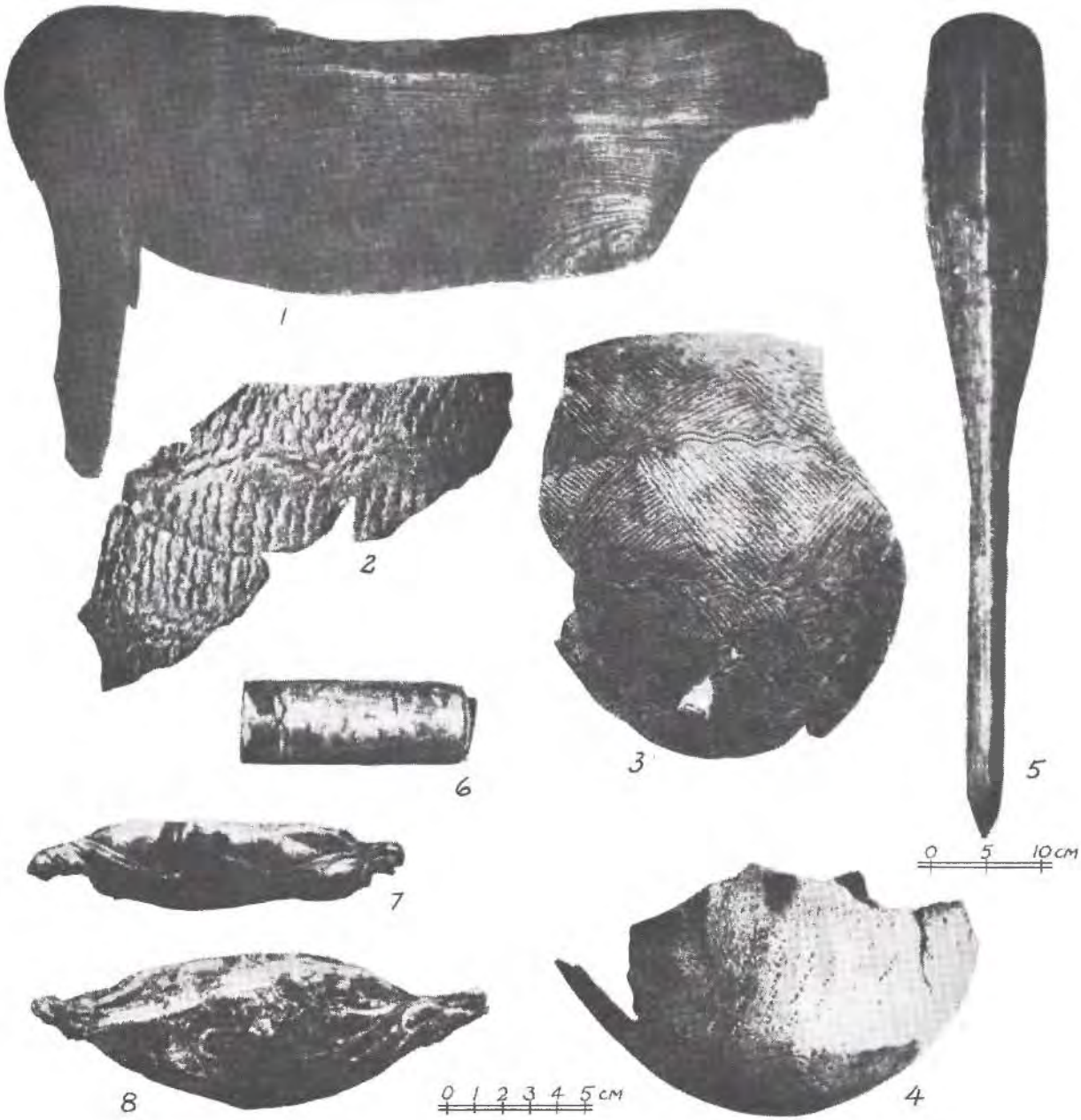


PLATE 102. Finds from the lower layer of Section Six in the peat bog of Gorbunovo, east of middle Urals. **1**, fragment of an elk figure carved in wood; **2–4**, fragments of round-based pots; **5**, wooden paddle; **6**, float made of birch bark; **7**, **8**, net-sinkers of clay, wrapped in birch bark. *After* Eding, 1940b, and Brjusov, 1952.

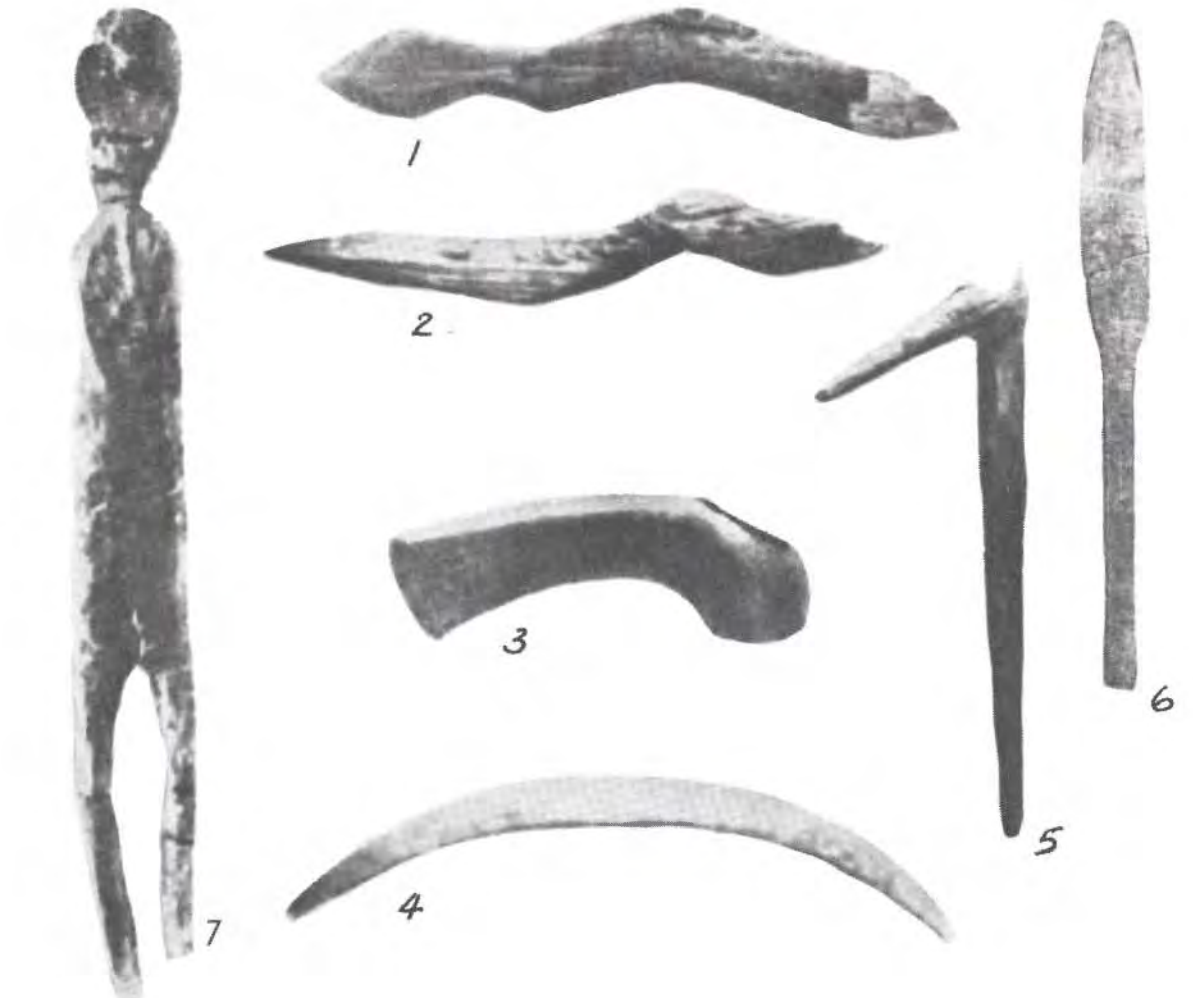


PLATE 103. Finds from the middle layer of Section Six in the peat bog of Gorbunovo. **1**, **2**, snake sculptures in wood; **3**, copper shaft-hole axe; **4**, boomerang; **5**, wooden hook; **6**, wooden paddle; **7**, human idol in wood. *After* Eding, 1940 a and b.



PLATE 104. Finds from the site of Beregovaja I in the Gorbunovo peat bog. **1, 2**, potsherds with decoration showing Andronovo and Abashevo influence; **3**, clay mold for a celt of Sejma type; **4**, flint scraper; **5**, stone adze; **6**, flint knife made on a flake; **7, 8**, flint arrowheads; **9**, reconstructed pot. Scale **1–8**, approx. $^4/_5$; **9**, approx. $^1/_4$. *After* Eding, 1940b.

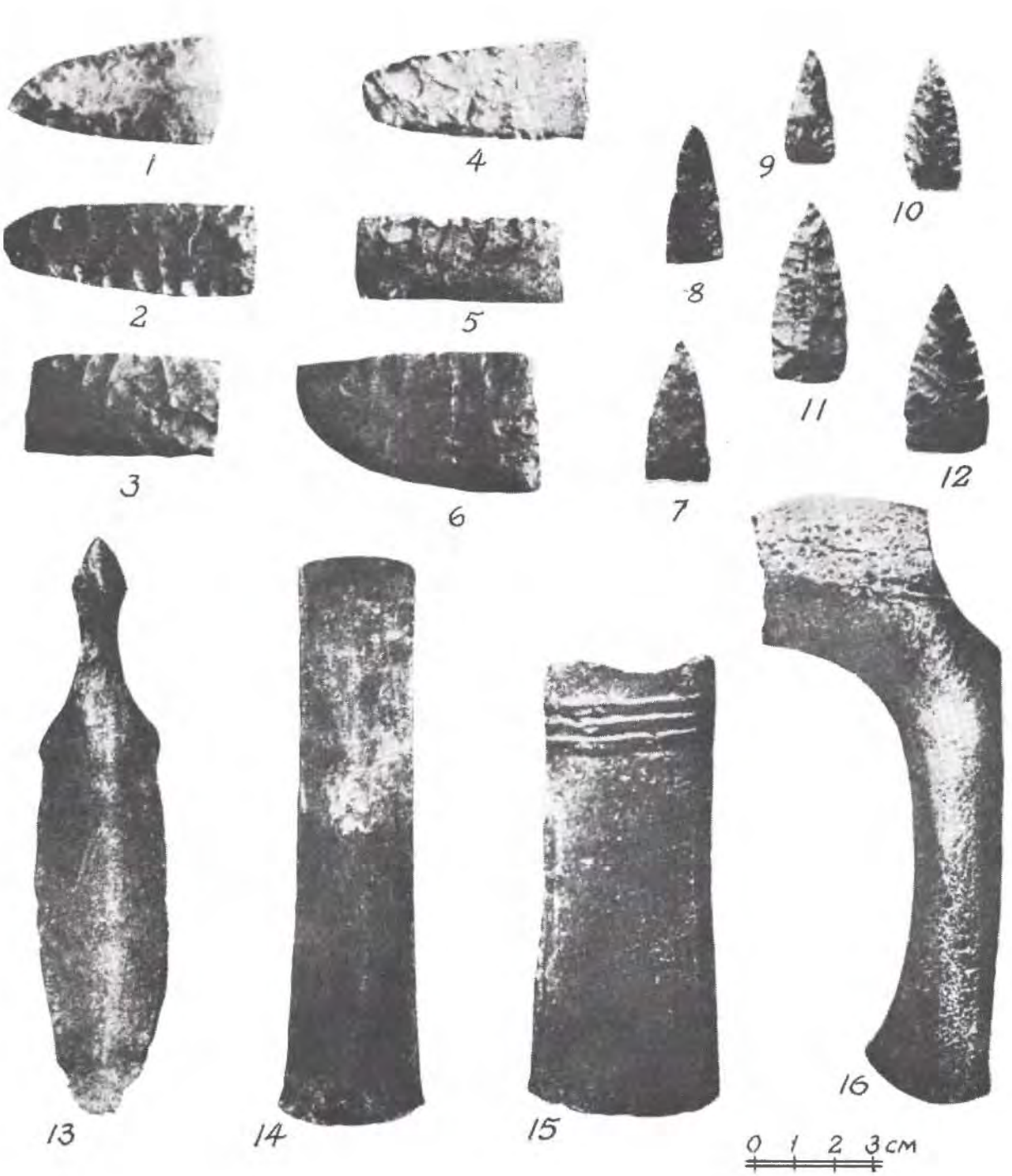


PLATE 105. Finds from the cemetery of Turbino. **1–6,** flint knives; **7–12,** flint arrowheads; **13,** dagger; **14,** chisel; **15,** socketed celt; **16,** bronze shaft-hole axe. *By courtesy of O. N. Bader, Moscow.*

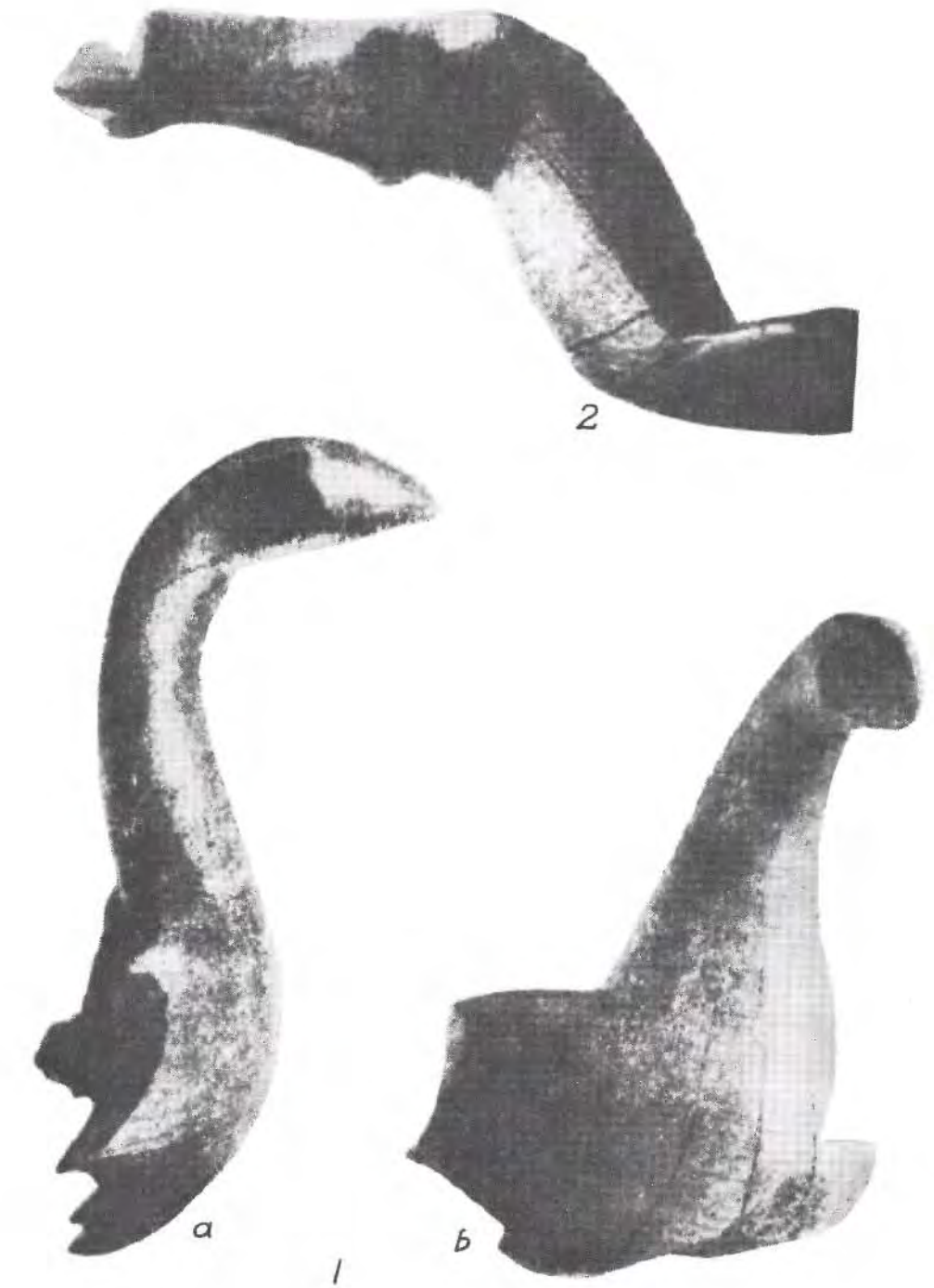


PLATE 106. Wooden sculptures from the peat bog site of Lake Shigir, east of middle Urals. **1**, a goose (**a**, side view; **b**, front view) and **2**, an elk. *After* Eding, 1940b.

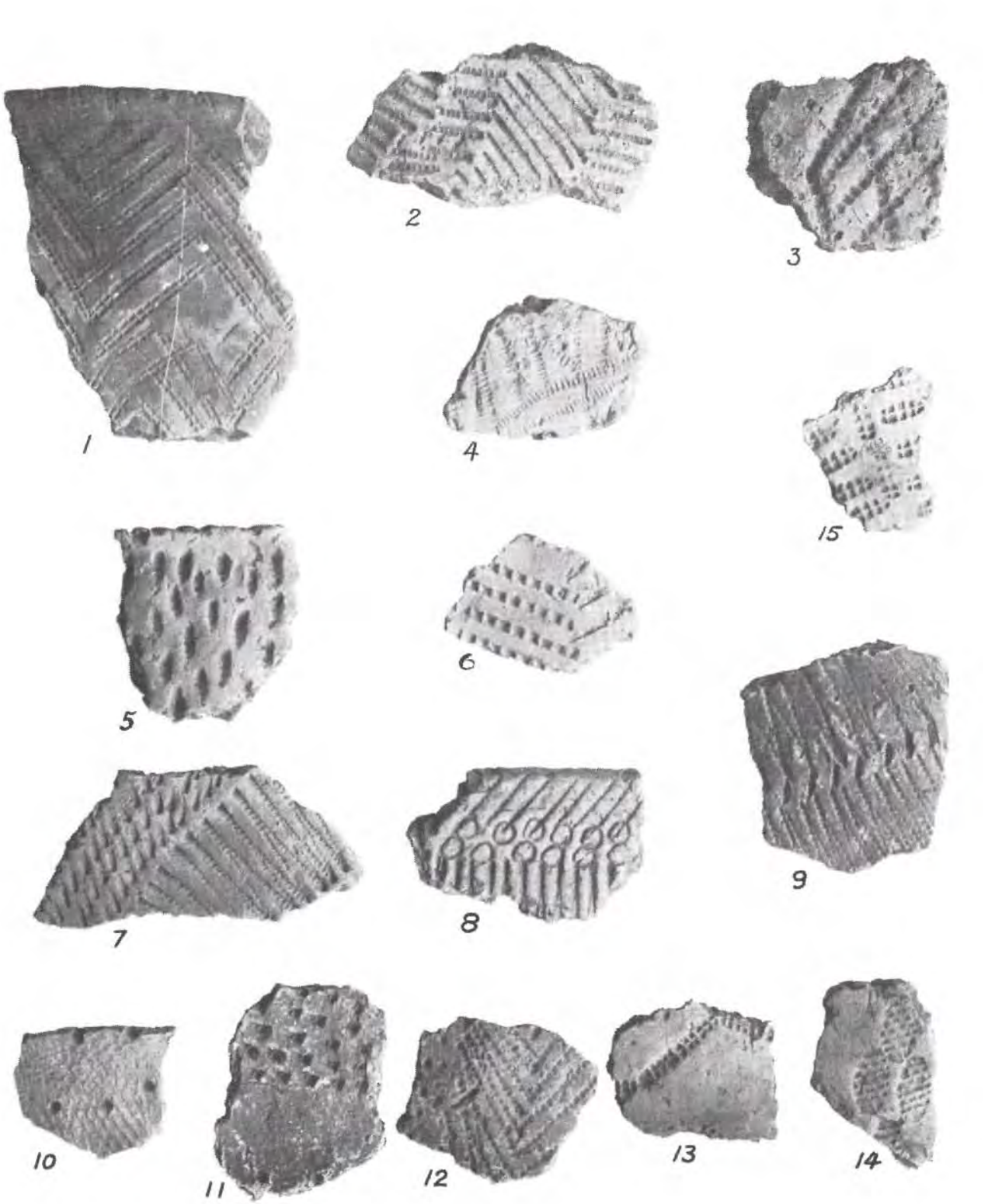


PLATE 107. Potsherds from the habitation site of Volodary near Gorkij, central Russia. Lower horizon. *By courtesy of the State Historical Museum in Moscow.* Excavations by I. K. Tsvetkova.

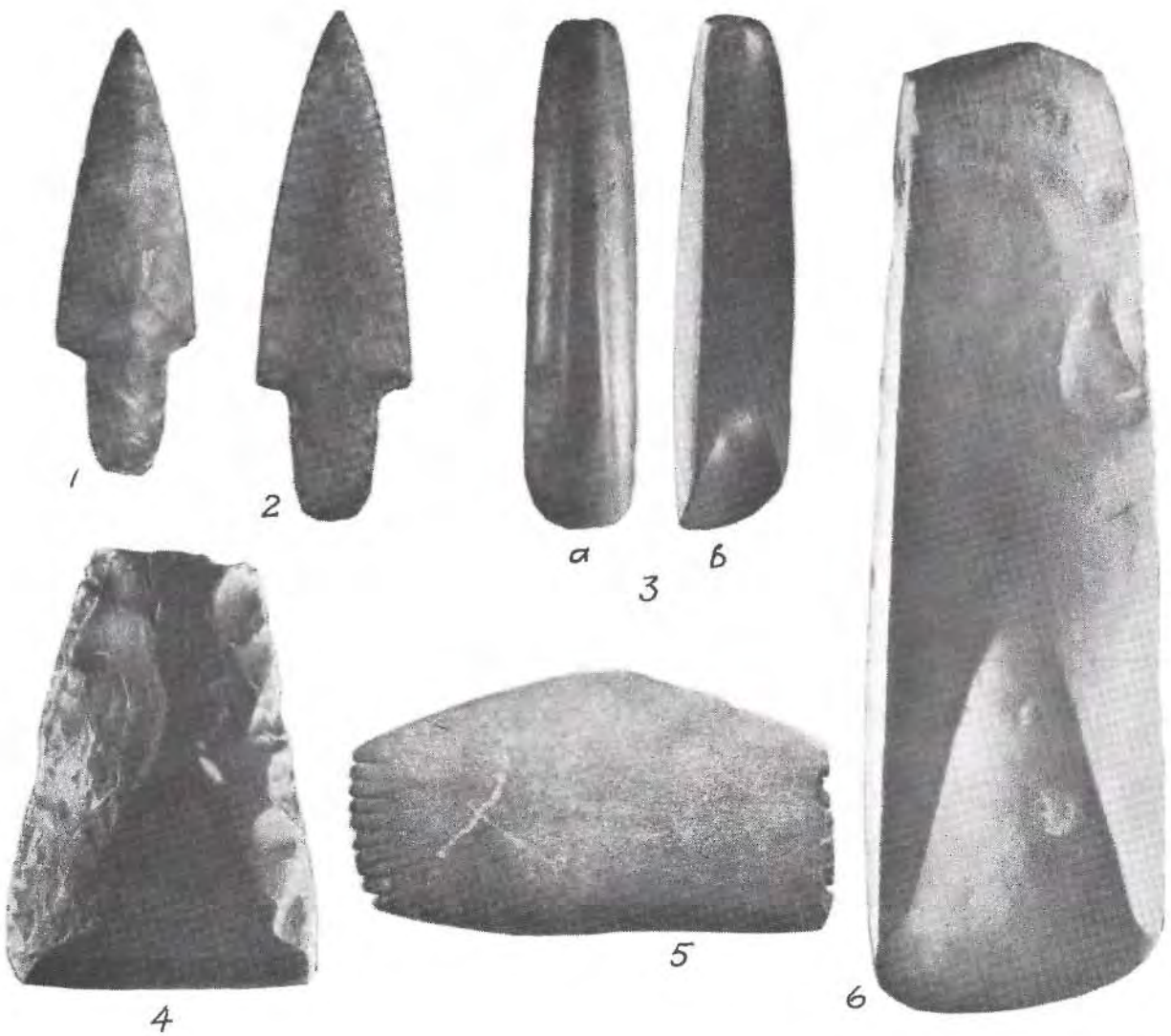


PLATE 108. Stone objects from the Volosovo hoard, lower Oka, central Russia. Scale, **1–3**, $^1/_2$; **4–6**, $^1/_1$. **1, 2**, flint arrowheads; **3, 6**, gouges; **4**, celt; **5**, stamp for ornamenting pottery. *By courtesy of the State Historical Museum in Moscow.* Excavations by I. K. Tsvetkova.

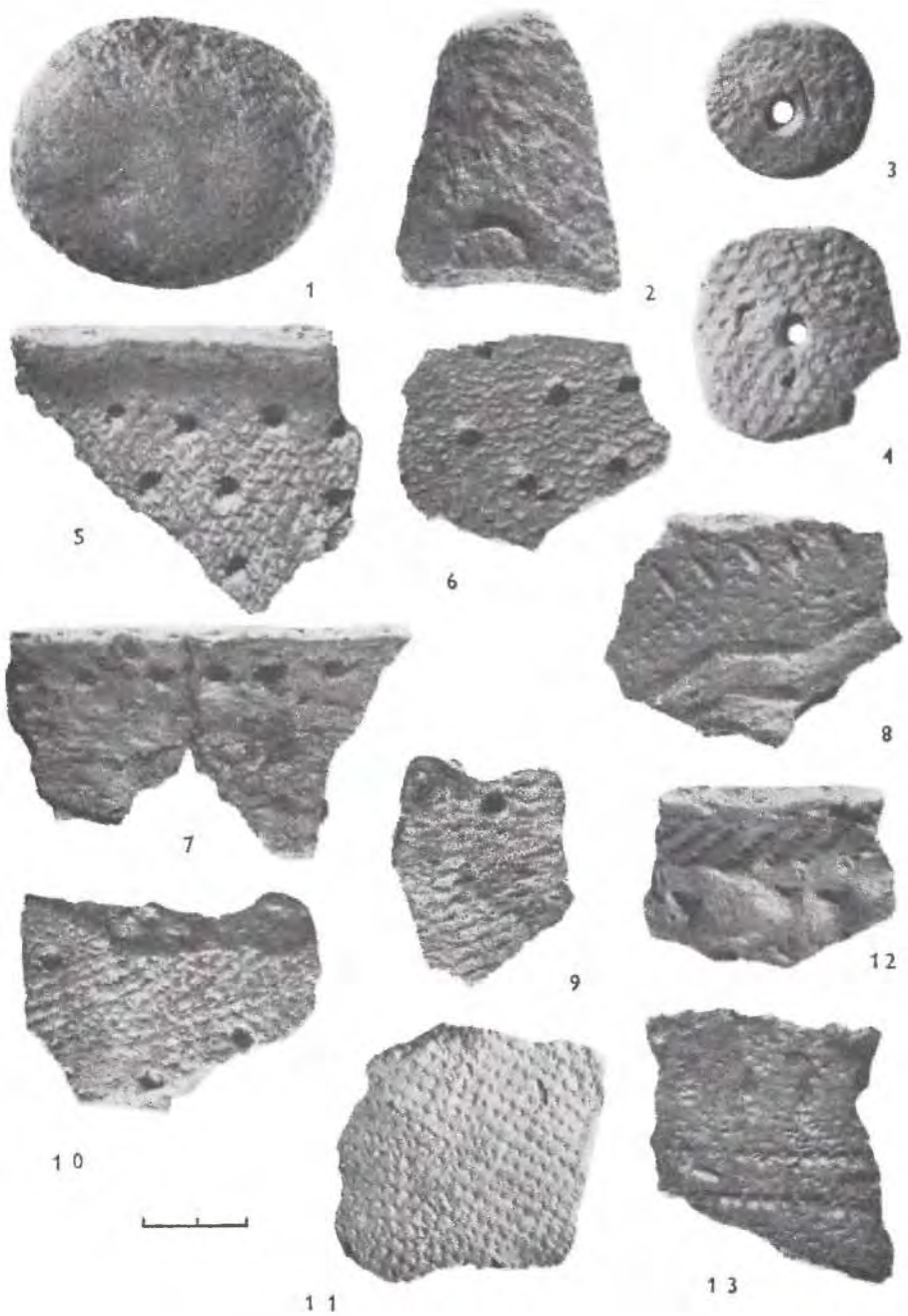


PLATE 109. **5–13**, textile-marked pottery, **1**, a whetstone, **2**, a fragment of a stone axe with an unfinished perforation; **3, 4,** whorls. From the habitation site of Ust'-Rybezhno II, on the Pasha River, district of Leningrad (**1–6**; **8–13**) and from the Olonka River site, also in the district of Leningrad (**7**). *After* Gurina, 1959.

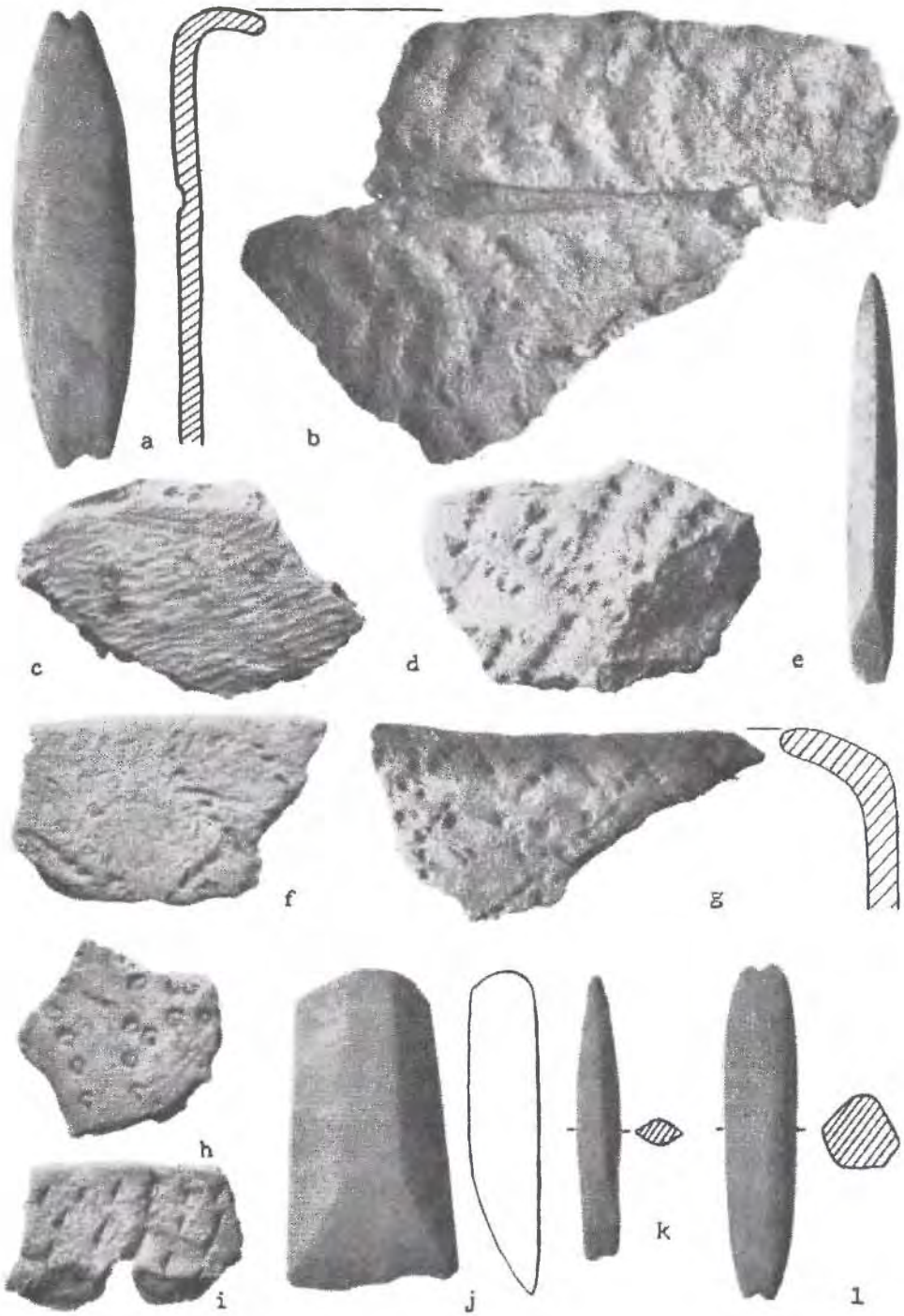


PLATE 110. Finds from the Asbestos Pottery sites in Finland. **a, l**, net sinkers of slate; **e, k**, arrow points of slate; **j**, stone adze; **b–d, f–i**, sherds. **a, b**, Pöljä, district of Siilinjärvi; **c–e**, Pitkäjärvi, district of Räisälä; **f–l**, Väntsi, district of Johannes. Scale $^{3}/_{4}$. *After* Meinander, 1954b.



PLATE 111. Asbestos pottery sherds decorated with meander ornament. Vehkaranta habitation site, district of Kerimäki, Finland. Scale $^{2}/_{3}$. *After* Meinander, 1954a.

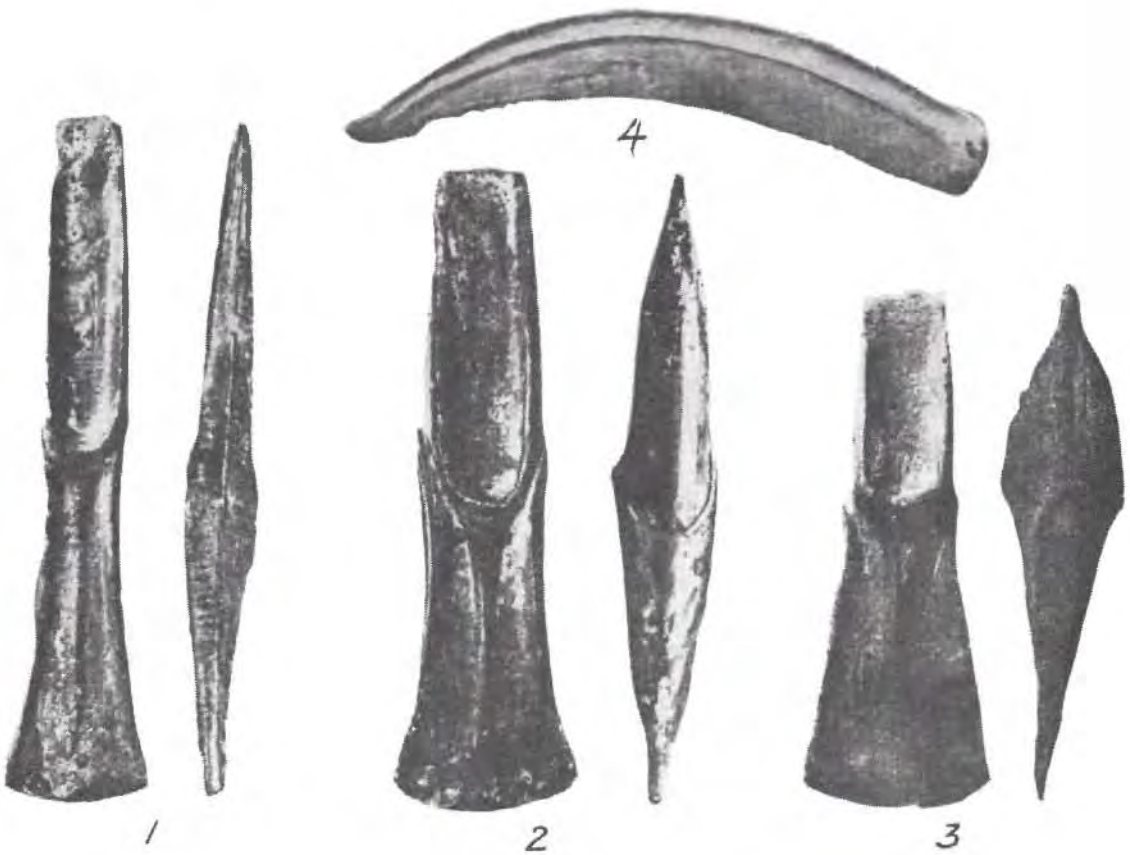


PLATE 113. **1–3**, palstaves, and **4**, sickle of Lusatian type from Finland and Estonia. **1**, Dragsfjärd; **2**, Uskela; **3**, Sibbo, Finland; **4**, Raasiku, Jarju-Jaani district, Estonia. *After* Meinander, 1954a (**1–3**), and Moora, 1932 (**4**).



PLATE 112. **1**, **2**, palstaves, **3**, dagger, and **4**, **5**, spearheads of bronze found in Finland. **6**, ornamented detail of the palstave No. 2; **7**, ornamented top of the dagger. **1**, **2**, Helsinge; **3**, Sund; **4**, Uskela; **5**, Kokemäki. *After* Meinander, 1954a.



PLATE 114. Stone-barrow in Uotinmäki site, district of Kiukainen, Satakunta, Finland. *After* Meinander, 1954a.



PLATE 115. A general view of the uncovered village of Ottenböte, Åland. *After* Meinander, 1954a.